Prepared For

Regional Transportation Authority

January 1995

Investment In Public Transportation:

The Economic Impacts of the RTA System on the Regional and State Economies

Prepared by
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with
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Beatta Welsh
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Final Report

Investment in Public Transportation: The Economic Impacts of the RTA System on the Regional and State Economies (Project A2077)

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Preparation of this document was financed in part through a grant from the U.S. Department of Transportation, Federal Transit Administration, under the Federal Transit Act, through the Illinois Department of Transportation, Division of Public Transportation. The contents do not necessarily reflect the official views or policies of the U.S. Department of Transportation, Federal Transit Administration or the Illinois Department of Transportation, Division of Public Transportation. This report does not constitute a standard, specification or regulation.

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Executive Summary

Study Background and Purpose

The Regional Transportation Authority (RTA) was established in 1974, after the enactment of state legislation and a referendum, with jurisdiction over the six-county Chicago Metropolitan area. The RTA provides planning, funding, coordination, and fiscal oversight of three separately governed operating subsidiaries: the Chicago Transit Authority (CTA), the Commuter Rail Division (Metra), and the Suburban Bus Division (Pace). CTA, Metra, and Pace are directly responsible for the provision of public mass transportation services in the metropolitan area.

The RTA system is the second largest public transportation system in the United States. It carries approximately eight percent of total U.S. transit ridership, and daily, the RTA system provides public transportation services for over 2.1 million trips in the Chicago Metropolitan area. These trips bring people to work, to shop, and to a wide range of social and personal activities, and connect businesses with workers and customers. These transportation links provide a critical support for the overall regional economy.

While the RTA system is a critical link in the regional transportation network, its future is not entirely clear. The RTA system is comprised of approximately $16 billion worth of assets, some of which are now approaching 100 years of age. The RTA's 10-year plan has identified $8.5 billion in capital rebuilding and investment projects to rehabilitate its aging systems. However, recent funding pressures have caused some to question the value of continuing to invest in the RTA system.

The purpose of this study is to help evaluate whether investment in the RTA system pays off, relative to the investment made. By analyzing in depth the role of the RTA system on the regional transportation network and the economy, it is possible to understand better whether rehabilitating, maintaining, or upgrading the RTA system provides a good return on the public's investment.

The study provides an objective evaluation of the overall economic benefits versus the costs of RTA system's programs. It does this by comparing the benefits and costs to the state and regional economies associated with various levels of future investment in RTA, including four scenarios:

- A **Baseline/Deterioration** scenario, which represents funding and support for the RTA system at the current level of investment. There would be no additional funding for upgrading, expanding, or improving services, vehicles, or facilities beyond the current planned level.

- A **Disinvestment** scenario, which represents funding at a reduced rate from the current level of investment, at a minimum level to keep the system operating, although at reduced levels of service.

- A **"State of Good Repair"** scenario, which represents funding at a level to bring the system to a state of good repair, where it offers good service quality and is operating well.

- A **System Expansion** scenario, which represents funding at a level to bring the system beyond "good repair," to include expanded services and further enhancements to the quality of vehicles and facilities.

An important aspect of this study is that it is comprehensive in terms of estimating how the alternative levels of investment in RTA would affect travel times and travel costs for individual travelers – both transit users and highway users – and how those changes would then affect the cost of doing business and individual spending patterns, and, ultimately, the economy of the region and the State of Illinois.

This study was commissioned by the Regional Transportation Authority. The project was overseen by a Technical Committee representing various public agencies and private sector business concerns. RTA, and the technical committee members, which included the service boards, have provided data, previous studies, and input and feedback on various technical issues throughout the study.

Future Investment Scenarios

The scenarios represent various potential future levels of investment in the RTA system over a 20-year timeframe. The scenarios are designed to reflect representative levels of funding, and to understand how the differing levels of investment will impact on transportation services, costs and benefits, and on the regional and Illinois economies. Their purpose is not to present long-term financial plans, but to develop reasonable alternative assumptions through which higher and lower levels of investment in RTA can be evaluated.

Each of the scenarios was quantitatively defined in terms of annual RTA capital and operating costs and ridership. The estimates of these factors for each scenario are shown in Table 1.

Table 1. RTA Expenditures and Ridership by Scenario

Scenario	Years 1-5 (1995-1999)	Years 6-10 (2000-2004)	Years 11-15 (2005-2009)	Years 16-20 (2010-2014)	20-Year Total
Baseline/Deterioration					
Capital Costs[1]	$ 1,497.00	$ 1,276.00	$ 1,206.50	$ 1,137.00	$ 5,116.50
Operating Costs[1]	$ 5,934.00	$ 5,934.00	$ 5,934.00	$ 5,934.00	$23,736.00
Ridership[2]	2,935	2,772	2,613	2,472	10,792
Disinvestment Scenario					
Capital Costs[1]	$ 1,273.00	$ 1,145.50	$ 1,031.00	$ 928.00	$ 4,377.50
Operating Costs[1]	$ 5,448.50	$ 5,440.00	$ 4,983.50	$ 4,611.00	$20,483.50
Ridership[2]	2,642	2,431	2,237	2,057	9,366
State of Good Repair Scenario					
Capital Costs[1]	$ 2,203.00	$ 1,797.00	$ 1,660.00	$ 1,660.00	$ 7,320.00
Operating Costs[1]	$ 5,751.00	$ 6,044.50	$ 6,353.00	$ 6,677.00	$24,825.50
Ridership[2]	3,155	3,235	3,045	2,865	12,300
System Expansion Scenario					
Capital Costs[1]	$ 3,983.00	$ 3,338.50	$ 3,661.00	$ 3,661.00	$14,643.50
Operating Costs[1]	$ 6,962.00	$ 7,508.00	$ 8,158.50	$ 8,785.50	$31,414.00
Ridership[2]	3,375	3,272	3,187	3,214	13,048

1 In millions of 1994 dollars.

2 In millions of riders.

Baseline/Deterioration Scenario

Under this scenario, the RTA system would be funded and supported at the current level of investment. This scenario assumes that no additional levels of funding for upgrading, expanding or improving services or stock will be made beyond the current plans. This scenario does assume the completion of the Wisconsin-Central commuter rail line, but no additional new or expanded services. This scenario represents an erosion of the current system and quality of service and operation over time, with loss of market share by public transportation as the lack of new investment results in continued system disrepair and deterioration.

This is the scenario which serves as the benchmark for the other scenarios, all of which represent relative increases or decreases compared to the baseline. The impacts on the transportation network and the economy are calculated for the other scenarios as compared to this baseline.

Disinvestment Scenario

Under this scenario, the RTA system would be funded and supported at a reduced rate from the current level of investment, at a minimum level to keep the system in operation. Investment would be limited to the upkeep of essential system components. There would be no system upgrades or extensive rolling stock replacement, or other major investment. Over time, routes or services with declining ridership would be phased out.

State of Good Repair Scenario

Under this scenario, the RTA system would be funded and supported to bring the system to a state of "good repair," with sufficient investment to bring the current system to a point where it offers good service quality and is operating well. This would result in a system which operates better than it does today, but would not involve expansion of the system into new markets or improve the system beyond what has already been programmed.

System Expansion Scenario

Under this scenario, the RTA system would be funded and supported at a level to bring the system beyond "good repair," to include additional, expanded services, as well as rolling stock improvements. This would result in a system which operates at higher levels of service than it does today on existing lines, and includes expansion of the system into new markets. This study does not explicitly address the nature of those new markets and increased services, but views the expansion in terms of the overall system.

Transportation and Economic Impacts

A transportation model developed by Cambridge Systematics was used to take the system changes defined in the alternative investment scenarios, and estimate the impacts of these RTA system changes on the transportation network. The impacts on the transportation network are calculated in terms of changes in transportation costs to users. Table 2 summarizes the average annual changes (either increases or decreases in costs) of the three scenarios relative to the base case, which is the Baseline/Deterioration Scenario.

Next, economic simulation models for the Chicago metropolitan region and the rest of the State of Illinois were applied to estimate the impacts of travel cost and time changes calculated in the transportation model on the regional economy, in terms of business sales, employment, income and population. These impacts are estimated by type of industry. The economic impacts were estimated using the REMI forecasting and simulation model, developed by Regional Economic Models, Inc., which was specifically calibrated for two regions: 1) the six-county Chicago metropolitan area, and 2) the State of Illinois excluding the Chicago area.

The following summarizes the impacts of both models, by scenario. Results of the economic impact analysis on the Chicago region and the state are shown in Tables 3 to 7.

Disinvestment Scenario

Under this scenario of reducing funding to a minimum level, there would be a reduction in average annual capital and operating costs of a total of $199.6 million. However, this reduction in costs, or cost savings will be more than outweighed by the increased costs to RTA users and highway users. RTA users will experience an average annual cost increase of $390.9 million. Highway users will also share in the burden of RTA service reduction, with an average annual increase of $148.6 million for automobile users, and $19.6 million for heavy trucks. The net change in transportation costs under this scenario is an increase of $359.6 million.

This scenario will result in an average annual increase in fuel consumption of 16.9 million gallons, with an increase in parking cost of $135.2 million. Average annual auto ownership costs would increase by $15.5 million.

The Chicago metropolitan area REMI model forecasts that the loss of business sales associated with the reduction of investment in RTA services over time would be a loss of $.593 billion in 1995, rising to $1.075 billion in 2000, $1.601 billion in 2005, $2.155 billion in 2010, and $2.581 billion in the year 2014. The loss of business sales by the year 2014 represents four percent of forecast total business sales.

With the reduction in RTA services, the impact on employment is that there would be approximately 4,000 fewer jobs in the metropolitan area in 1995. By the year 2014, the figure increases to almost 25,000 fewer jobs in the metropolitan area.

Table 2. Changes in Transportation Costs for Future RTA Alternative Scenarios (Average Annual Cost in Millions of 1994 Dollars)

	Disinvestment[1]	State of Good Repair[1]	System Expansion[1]
Total Changes in Transportation Costs			
Effects on RTA Users	$ 390.9	$-318.7	$-848.2
Effects on Highway Users			
- Automobiles/Light Trucks	148.6	-157.3	-235.3
- Heavy Trucks	19.6	-20.8	-31.1
RTA Capital Costs	-37.0	110.2	476.4
RTA Operating Costs	-162.6	54.5	383.9
Total Change	359.6	-332.2	-254.4
Other Effects			
Change in RTA Subsidy[2]	-128.7	89.6	747.6
Change in Fuel Use (millions of gallons)	16.9	-17.9	-26.8
Change in Parking Costs	135.2	-143.0	-214.0
Changes in Auto Ownership Costs	15.5	-16.4	-24.5

[1] Changes in costs relative to the Base Case (Baseline/Deterioration scenario).

[2] Changes in capital and operating expenses compared to changes in fare revenue.

Negative numbers represent cost savings or reductions.

Source: Cambridge Systematics, Inc.

Table 3. Impact of RTA Alternatives on Annual Metropolitan Business Sales, by Type of Business

Industry	Sales in Millions of Constant 1994 Dollars (compared to Baseline/Deterioration) 1995	2000	2010	2014
Disinvestment Scenario				
Durables Manufacturing	-29.6	-61.6	-178.7	-234.6
Non-Durables	-19.4	-61.5	-163.8	-210.6
Construction	-139.9	-173.8	-276.0	-302.1
Transportation and Utilities	-36.0	-82.8	-167.0	-202.3
Finance, Insurance and Real Estate	-125.3	-226.8	-396.4	-464.3
Retail Trade	-73.3	-139.7	-269.4	-318.7
Wholesale Trade	-33.8	-61.3	-125.6	-153.3
Services	-134.2	-265.3	-570.6	-686.6
Other	-1.6	-3.5	-7.4	-8.9
Total	**-593.3**	**-1,074.6**	**-2,154.8**	**-2,581.5**
State of Good Repair Scenario				
Durables Manufacturing	14.8	54.3	154.1	186.2
Non-Durables	7.5	51.6	148.1	159.6
Construction	71.6	182.7	247.9	187.5
Transportation and Utilities	14.9	76.7	160.4	143.8
Finance, Insurance and Real Estate	49.7	223.1	378.7	279.4
Retail Trade	29.8	133.4	256.8	207.1
Wholesale Trade	14.9	59.3	116.2	104.5
Services	57.3	251.0	535.2	451.6
Other	.7	3.4	6.9	5.8
Total	**261.2**	**1,035.3**	**2,004.2**	**1,725.5**
System Expansion Scenario				
Durables Manufacturing	59.0	184.5	399.8	494.7
Non-Durables	14.8	140.5	328.1	404.2
Construction	283.4	440.4	641.4	705.2
Transportation and Utilities	33.5	147.3	305.0	365.0
Finance, Insurance and Real Estate	108.1	406.6	736.6	840.0
Retail Trade	73.2	252.0	493.6	576.5
Wholesale Trade	43.4	127.4	250.1	296.2
Services	169.6	535.2	1,114.9	1,320.9
Other	1.8	7.1	14.5	17.1
Total	**787.1**	**2,241.3**	**4,283.8**	**5,019.8**

Source: Cambridge Systematics, Inc., using the REMI Model.

Table 4. Impact of RTA Alternatives on Metropolitan Employment, by Type of Business

Industry	Change in Total Metropolitan Employment (compared to Baseline/Deterioration) 1995	2000	2010	2014
Disinvestment Scenario				
Durables Manufacturing	-155	-291	-639	-751
Non-Durables	-101	-272	-645	-788
Construction	-990	-1,247	-2,015	-2,220
Transportation and Utilities	-218	-503	-981	-1,162
Finance, Insurance and Real Estate	-605	-1,200	-2,290	-2,726
Retail Trade	-1,443	-2,655	-4,844	-5,596
Wholesale Trade	-321	-561	-1,081	-1,286
Services	-2,424	-4,672	-9,696	-11,495
Government	2,258	155	1,591	1,281
Other	-49	-99	-210	-251
Total	-4,048	-11,343	-20,808	-24,994
State of Good Repair Scenario				
Durables Manufacturing	77	254	550	596
Non-Durables	41	234	577	606
Construction	507	1,310	1,801	1,386
Transportation and Utilities	91	471	942	876
Finance, Insurance and Real Estate	238	1,141	2,158	1,808
Retail Trade	587	2,515	4,582	3,721
Wholesale Trade	141	536	989	898
Services	1,032	4,389	9,041	7,685
Government	-1,591	310	-188	-1,531
Other	22	91	195	170
Total	1,146	11,252	20,693	16,215
System Expansion Scenario				
Durables Manufacturing	296	862	1,428	1,582
Non-Durables	88	620	1,299	1,523
Construction	2,011	3,184	4,691	5,176
Transportation and Utilities	207	926	1,807	2,123
Finance, Insurance and Real Estate	491	2,172	4,258	4,961
Retail Trade	1,450	4,865	8,983	10,240
Wholesale Trade	414	1,185	2,175	2,506
Services	3,072	9,565	19,235	22,420
Government	-12,223	-10,372	-12,912	-14,881
Other	64	203	414	487
Total	-4,130	13,211	31,378	36,137

Source: Cambridge Systematics, Inc., using the REMI Model.

Table 5. Summary of Economic Impacts of RTA Alternatives on the Chicago Metropolitan Area

Industry	Annual Impact (compared to Baseline/Deterioration) 1995	2000	2010	2014
Disinvestment Scenario				
Business Sales (in millions of $1994)	-593	-1,075	-2,155	-2,581
Personal Income (in millions of $1994)	-148	-595	-1,460	-1,766
Employment (thousands)	-4.0	-11.3	-20.8	-25.0
Population (thousands)	-3.0	-21.8	-47.8	-54.9
State of Good Repair Scenario				
Business Sales (in millions of $1994)	261	1,035	2,004	1,726
Personal Income (in millions of $1994)	42	800	1,683	1,214
Employment (thousands)	1.1	11.2	20.7	16.2
Population (thousands)	1.2	15.5	47.7	41.6
System Expansion Scenario				
Business Sales (in millions of $1994)	787	2,241	4,284	5,020
Personal Income (in millions of $1994)	-156	1,021	2,614	3,117
Employment (thousands)	-4.1	13.2	31.4	36.1
Population (thousands)	2.0	24.9	73.4	90.7

Source: Cambridge Systematics, Inc., using the REMI Model.

Table 6. Economic Impacts of RTA Alternatives on the Rest of Illinois Outside of the Chicago Metropolitan Area

Industry	Annual Impact (compared to Baseline/Deterioration) 1995	2000	2010	2014
Disinvestment Scenario				
Business Sales (in millions of $1994)	-53	-79	-144	-171
Personal Income (in millions of $1994)	-23	-42	-82	-96
Employment (thousands)	-.7	-1.3	-2.0	-2.3
Population (thousands)	-.2	-1.6	-3.5	-4.1
State of Good Repair Scenario				
Business Sales (in millions of $1994)	24	81	133	106
Personal Income (in millions of $1994)	9	40	76	62
Employment (thousands)	.3	1.1	1.9	1.5
Population (thousands)	.09	1.2	3.5	3.1
System Expansion Scenario				
Business Sales (in millions of $1994)	79	167	289	331
Personal Income (in millions of $1994)	23	70	142	168
Employment (thousands)	.9	2.2	3.9	4.3
Population (thousands)	.2	2.3	5.9	7.3

Source: Cambridge Systematics, Inc., using the REMI Model.

Table 7. Economic Impacts of RTA Alternatives on the Entire State of Illinois

Industry	Annual Impact (compared to Baseline/Deterioration) 1995	2000	2010	2014
Disinvestment Scenario				
Business Sales (in billions of $1994)	-647	-1,153	-2,299	-2,752
Personal Income (in billions of $1991)	-171	-637	-1,542	-1,862
Employment (thousands)	-4.7	-12.5	-22.8	-27.3
Population (thousands)	-3.3	-22.8	-51.3	-58.9
State of Good Repair Scenario				
Business Sales (in billions of $1994)	286	1,116	2,138	1,831
Personal Income (in billions of $1991)	51	840	1,759	1,276
Employment (thousands)	1.4	12.4	22.6	17.7
Population (thousands)	1.3	16.7	51.2	44.7
System Expansion Scenario				
Business Sales (in billions of $1994)	866	2,409	4,573	5,351
Personal Income (in billions of $1991)	-133	1,091	2,756	3,285
Employment (thousands)	-3.2	15.4	35.2	40.5
Population (thousands)	2.2	27.2	79.3	98.0

Source: Cambridge Systematics, Inc., using the REMI Model.

The loss of jobs due to the reduction of RTA services in the Disinvestment scenario would cause a loss of overall personal income in the metropolitan area. A depressed labor market, in which average wages are reduced, would lead to further reductions in personal income. The impact, in terms of personal income, would be $.6 billion by the year 2000, rising to $1.7 billion by the year 2014 as expressed in constant 1994 dollars.

The reduction of RTA services would result in 22,000 fewer people living in the metropolitan area by the year 2000. By the year 2014, this difference would increase to 55,000 fewer people living in the metropolitan area.

Good Repair Scenario

This scenario, which calls for investment to a level sufficient to bring the system to a state of good repair, will require, on average, annual capital and operating expenditures of $164.7 million. RTA users will experience annual transportation cost savings of $318.7 million. Auto users will save on average $157.3 million, and truck users will have savings of $20.8 million per year. The net impact is $332.2 million in cost savings per year.

This scenario would result in an average annual decrease in fuel consumption of 17.9 million gallons, and a decrease in parking costs of $143 million. Auto ownership costs would decrease an average of $16.4 million annually.

The REMI model forecasts that the increase in business sales associated with investment to bring the RTA system to a state of good repair would be $.261 billion in 1995, $1.035 billion in 2000, $1.635 billion in 2005, $2.004 billion in 2010, and $1.725 billion in 2014.

Under the State of Good Repair scenario, jobs will increase overall in 1995 by 1,146. They will rise to 20,693 in 2010, and drop slightly to 16,215 by 2014.

The State of Good Repair scenario would result in a gain of personal income by the year 2014 of $1.2 billion.

Under the State of Good Repair scenario, metropolitan population would grow by 280,000 less by the 15,000 in the year 2000 and 42,000 in 2014.

System Expansion Scenario

This scenario, which represents investing in the system to expand it beyond the state of good repair, will require significantly more investment, approximately $860.3 million per year. This level of funding will result in significant transportation cost reductions. It is important to note that the majority of the transportation system benefits of this scenario will be realized in the latter portion of the 20 year period. For example, the benefits to RTA users will include an average cost savings of $848.2 million per year. Annual savings to auto users will be $235.3 million; to truck users, $31.1 million. The average annual net total

savings impacts under this scenario are $254.4 million. In comparison, the total net savings impact in year 2011 will be $572.6 million, and $587.9 million in 2012.

This scenario would result in an average annual decrease in fuel consumption of 26.8 million gallons. On average, parking costs are anticipated to decrease $214 million. The average annual decrease in auto ownership cost would be $24.5 million.

The REMI model forecasts that the changes in business sales associated with investment to expand the RTA system would be $.787 billion in 1995, $2.241 billion in 2000, $3.023 billion in 2005, $4.283 billion in 2010, and rising to $5.020 billion in 2014.

Under the System Expansion scenario, jobs will decrease overall in 1995 by 4,130. They will rise to 31,378 in 2010, and 36,137 by 2014. The gain in personal income would be $3.1 billion in 2014.

Under the System Expansion scenario, metropolitan population would be nearly 25,000 more by the year 2050, and 91,000 more by 2014.

Statewide Economic Impacts

The results of the economic impact analysis for the State as a whole, are shown in Tables 6 and 7.

Overall impacts on the State of Chicago reflect:

- Impacts on the Chicago metropolitan area (Tables 2 to 5)
- Plus impacts on the rest of the State of Illinois (Table 6)

This takes into account changes in shifts between Chicago and the rest of the state. Overall impacts on the State of Illinois would be:

Disinvestment Scenario

Statewide impacts of the scenario would increase over time to represent by the year 2014:

- A loss of over $2.8 billion/year of business sales;
- A loss of over $1.9 billion/year in personal income;
- An employment loss of nearly 27,000 jobs; and
- A population loss of 59,000 people.

State of Good Repair Scenario

Statewide impacts of this scenario in year 2014 would be:

- A gain of over $1.8 billion/year of business sales;
- A gain of $1.3 billion/year in personal income;
- An employment gain of 18,000 jobs; and
- A population gain of 45,000 people.

System Expansion Scenario

By the year 2020, statewide impacts of system expansion of RTA services would be:

- A gain of $5.3 billion/year of business sales;
- A gain of $3.3 billion/year personal income;
- An employment gain of 40,000 jobs; and
- A population gain of 98,000 people.

Fiscal Impacts

Fiscal impacts of the scenarios for future estimates were calculated using a fiscal impact model developed by Cambridge Systematics. The fiscal impact model for the Chicago metropolitan area was developed to forecast how the predicted change in population and employment would affect the finances of municipality and county government, special districts, schools and community colleges.

The model shows that under the RTA Disinvestment Scenario, both revenues and expenditures would be reduced for years 1995 through 2014. Under the RTA State of Good Repair and System Expansion Scenarios, the expansion in population and employment would result in an increase in both revenues and expenditures. These results are shown in Tables 8 to 10.

In summary, the fiscal impact model predicts, in year 2014, the following changes in revenues and expenditures:

- **Disinvestment Scenario**

  -$86.6 million in revenue
  -$85.5 million in expenditures

Table 8. Summary of Fiscal Impacts of RTA Investment on the Chicago Metropolitan Area Disinvestment Scenario (1994 Dollars)

	1995	2000	2010	2014
Change in Revenues				
Municipal	($ 838,000)	($ 5,834,057)	($13,158,780)	($15,105,485)
County	(697,209)	(4,853,889)	(10,947,999)	(12,567,642)
Township	(51,468)	(358,316)	(808,186)	(927,749)
Special District	(95,239)	(663,043)	(1,495,502)	(1,716,746)
School (elementary, unit, high school)	(2,933,449)	(20,422,319)	(46,062,764)	(52,877,273)
Community College	(190,522)	(1,326,390)	(2,991,688)	(3,434,277)
Total	**($4,805,888)**	**($33,458,014)**	**($75,464,919)**	**($86,629,172)**
Change in Expenditures				
Municipal	($ 837,014)	($ 5,827,188)	($13,143,287)	($15,087,700)
County	(695,574)	(4,842,504)	(10,922,321)	(12,538,165)
Township	(51,422)	(357,993)	(807,458)	(926,913)
Special District	(94,921)	(660,831)	(1,490,512)	(1,711,017)
School (elementary, unit, high school)	(2,931,855)	(20,411,222)	(46,037,736)	(52,848,542)
Community College	(190,393)	(1,325,494)	(2,989,666)	(3,431,956)
Total	**($4,801,179)**	**($33,425,233)**	**($75,390,979)**	**($86,544,294)**

Source: Cambridge Systematics, Inc.

Table 9. Summary of Fiscal Impacts of RTA Investment on the: Chicago Metropolitan Area State of Good Repair Scenario (1994 Dollars)

	1995	2000	2010	2014
Change in Revenues				
Municipal	$ 330,520	$ 4,403,529	$13,532,588	$11,819,221
County	283,329	3,774,794	11,600,407	10,131,674
Township	20,006	266,542	819,117	715,408
Special District	38,068	507,181	1,558,629	1,361,290
School (elementary, unit, high school)	1,149,307	15,312,240	47,056,407	41,098,575
Community College	74,445	991,835	3,048,032	2,662,119
Total	**$1,895,675**	**$25,256,121**	**$77,615,179**	**$67,788,288**
Change in Expenditures				
Municipal	$ 330,518	$ 4,403,500	$13,532,501	$11,819,145
County	283,326	3,774,766	11,600,321	10,131,600
Township	20,003	266,500	818,989	715,296
Special District	38,067	507,168	1,558,589	1,361,255
School (elementary, unit, high school)	1,149,305	15,312,213	47,056,322	41,098,501
Community College	74,445	991,833	3,048,024	2,662,112
Total	**$1,895,664**	**$25,255,980**	**$77,614,745**	**$67,787,909**

Source: Cambridge Systematics, Inc.

Table 10. Summary of Fiscal Impacts of RTA Investment on the Chicago Metropolitan Area: System Expansion Scenario (1994 Dollars)

	1995	2000	2010	2014
Change in Revenues				
Municipal	$ 571,596	$ 7,082,333	$ 20,843,218	$ 25,753,602
County	489,983	6,071,118	17,867,226	22,076,506
Township	34,598	428,688	1,261,623	1,558,845
Special District	65,834	815,714	2,400,637	2,966,196
School (elementary, unit, high school)	1,987,590	24,627,154	72,477,412	89,552,120
Community College	128,744	1,595,199	4,694,652	5,800,649
Total	**$3,278,345**	**$40,620,206**	**$119,544,769**	**$147,707,917**
Change in Expenditures				
Municipal	$ 571,592	$ 7,082,287	$ 20,843,084	$ 25,753,435
County	489,980	6,071,073	17,867,094	22,076,343
Township	34,593	428,621	1,261,426	1,558,601
Special District	65,832	815,694	2,400,576	2,966,120
School (elementary, unit, high school)	1,987,586	24,627,109	72,477,281	89,551,958
Community College	128,744	1,595,195	4,694,640	5,800,634
Total	**$3,278,326**	**$40,619,979**	**$119,544,101**	**$147,707,092**

Source: Cambridge Systematics, Inc.

- **State of Good Repair Scenario**

  +$67.8 million in revenue
  +$67.8 million in expenditures

- **System Expansion Scenario**

  +$147.7 million in revenue
  +$147.7 million in expenditures

Cost Benefit Analysis

Benefit/cost analysis provides a means of assessing the net public benefits of the various levels of investment in RTA, relative to the base case of the baseline level of investment. The comparison is made in terms of the "net benefit" (defined as benefits minus costs) and the "benefit/cost ratio" (defined as the ratio of benefits divided by costs).

The costs and benefits associated with the RTA alternatives are defined by the fact that one of the alternatives represents a negative change in transit services, while the other two represent a positive change, compared to the base case.

Thus, in the case of the Disinvestment Scenario:

- The economic "benefit" of reducing RTA is a savings in public spending now going to subsidize the price of providing public transportation services.

- The economic "cost" of reducing RTA is a loss of personal income due to contraction of the economy as a result of the degraded transportation system.

In the cases of the State of Good Repair and System Expansion Scenarios:

- The economic "benefit" of improving or expanding RTA is an increase in personal income due to the expansion of the economy as a result of an upgraded transportation system.

- The economic "cost" of improving or expanding RTA is an increase in public spending now going to subsidize the price of providing public transportation services.

Thus, the benefit/cost comparison effectively compares the benefit of added money in the pockets of Chicago and Illinois residents to the cost of money lost from the pockets of Chicago and Illinois residents.

In order to evaluate each of the three RTA alternatives (relative to the base case alternative), it is necessary to compare streams of costs and benefits generated during each year of the

20-year study period from 1995 through 2014. Each future year cost and benefit is estimated in terms of constant 1994 dollars, and then further discounted to its equivalent "present value." The discount rate adopted for project evaluation purposes by state and federal transportation agencies ranges from four percent to 10 percent. We use both discount rates for this study.

Results of the benefit/cost analysis are shown for alternative discount rates in Tables 11 and 12. It is clear that for all three of the alternatives, the costs of investing in transit are far outweighed by the benefits they generate to the region.

In the case of the Disinvestment Scenario, while the reduction in RTA would save the public a considerable amount in spending on RTA ($2.5 billion and $1.4 billion, at 4% and 10% discount rates, respectively), the negative impacts of reducing RTA services would result in a loss of personal income approximately five times the amount of the savings. The net impact on personal income would be $-10.6 billion at 4% discount, and $-5.5 billion at 10%.

As described above, in the case of the Disinvestment Scenario, the benefits are in terms of a reduction in the costs to the public of RTA. The costs are in terms of the loss of personal income due to the degradation of the transportation system. The benefit/cost ratios of this scenario are extremely low, regardless of which discount rate is used. The ratios are .19 (at 4%) and .21 (at 10%), meaning that the benefits of reducing RTA services are no more than 20 percent of the income losses which that brings to the state economy. These results show that it is not cost-effective to allow RTA to deteriorate.

In the State of Good Repair and Expansion Scenarios, the costs of additional investment in RTA services are far outweighed by the benefits generated to the economy and to the pockets of Illinois residents, under both discount rates. The State of Good Repair results in higher net benefits (an increase of $11.5 billion (4%) and $6.0 billion (10%) than the System Expansion Scenario. Investment in System Expansion results in $9.0 billion (4%) and $3.3 billion (10%).

The benefit/cost ratios are similar for both discount rates. Good Repair has the highest return on investment, at 6.6 (and 6.2). System Expansion is smaller (1.8 and 1.5), but still maintains a positive return.

Table 11. Net Present Value of Statewide Benefits and Costs of RTA Alternatives (at 4% Discount Rate)

	Impacts Relative to the Baseline/Deterioration Scenario (all values are net present values in billions of constant 1994 dollars)		
	Disinvestment	State of Good Repair	System Expansion
Net Public Spending on RTA	-2.5	+2.1	+11.2
Net Present Value of Income Change	-13.1	+13.6	+20.2
Net Impact on Personal Income	-10.6	+11.5	+9.0
Benefit/Cost Ratio of Investing in RTA[1]	0.19	6.6	1.8

[1] In the case of Disinvestment, the Benefit is represented by the reduction in public spending, and the Cost by the loss of personal income.

In the case of Good Repair and System Expansion, the Benefit is represented by the increase in personal income, and the Cost by the increased costs in public spending.

Source: Cambridge Systematics, Inc.

Table 12. Net Present Value of Statewide Benefits and Costs of RTA Alternatives (at 10% Discount Rate)

	Impacts Relative to the Baseline/Deterioration Scenario (all values are net present values in billions of constant 1994 dollars)		
	Disinvestment	**State of Good Repair**	**System Expansion**
Net Public Spending on RTA	-1.4	+1.2	+6.7
Net Present Value of Income Change	-6.9	+7.2	+10.0
Net Impact on Personal Income	-5.5	+6.0	+3.3
Benefit/Cost Ratio of Investing in RTA[1]	.21	6.2	1.5

[1] In the case of Disinvestment, the Benefit is represented by the reduction in public spending, and the Cost by the loss of personal income.

In the case of Good Repair and System Expansion, the Benefit is represented by the increase in personal income, and the Cost by the increased costs in public spending.

Source: Cambridge Systematics, Inc.

1.0 Introduction

1.0 Introduction

1.1 Study Background and Purpose

The Regional Transportation Authority (RTA) was established in 1974, after the enactment of state legislation and a referendum, with jurisdiction over the six-county Chicago Metropolitan area. The RTA provides planning, funding, coordination, and fiscal oversight of three separately governed operating subsidiaries: the Chicago Transit Authority (CTA), the Commuter Rail Division (Metra), and the Suburban Bus Division (Pace). CTA, Metra, and Pace are directly responsible for the provision of public mass transportation services in the metropolitan area.

The RTA system is the second largest public transportation system in the United States. It carries approximately eight percent of total U.S. transit ridership, and daily, the RTA system provides public transportation services for over 2.1 million trips in the Chicago Metropolitan area. These trips bring people to work, to shop, and to a wide range of social and personal activities, and connect businesses with workers and customers. These transportation links provide a critical support for the overall regional economy.

While the RTA system is a critical link in the regional transportation network, its future is not entirely clear. The RTA system is comprised of approximately $16 billion worth of assets, some of which are now approaching 100 years of age. The RTA's 10-year plan has identified $8.5 billion in capital rebuilding and investment projects to rehabilitate its aging systems. However, recent funding pressures have caused some to question the value of continuing to invest in the RTA system.

The purpose of this study is to help evaluate whether investment in the RTA system pays off, relative to the investment made. By analyzing in depth the role of the RTA system on the regional transportation network and the economy, it is possible to understand better whether rehabilitating, maintaining, or upgrading the RTA system provides a good return on the public's investment.

The study provides an objective evaluation of the overall economic benefits versus the costs of RTA system's programs. It does this by comparing the benefits and costs to the state and regional economies associated with various levels of future investment in RTA, including four scenarios:

- A **Baseline/Deterioration** scenario, which represents funding and support for the RTA system at the current level of investment. There would be no additional funding for upgrading, expanding, or improving services, vehicles, or facilities beyond the current planned level.

- A **Disinvestment** scenario, which represents funding at a reduced rate from the current level of investment, at a minimum level to keep the system operating, although at reduced levels of service.

- A **"State of Good Repair"** scenario, which represents funding at a level to bring the system to a state of good repair, where it offers good service quality and is operating well.

- A **System Expansion** scenario, which represents funding at a level to bring the system beyond "good repair," to include expanded services and further enhancements to the quality of vehicles and facilities.

An important aspect of this study is that it is comprehensive in terms of estimating how the alternative levels of investment in RTA would affect travel times and travel costs for individual travelers – both transit users and highway users – and how those changes would then affect the cost of doing business and individual spending patterns, and, ultimately, the economy of the region and the State of Illinois.

This study was commissioned by the Regional Transportation Authority. The project was overseen by a Technical Committee representing various public agencies and private sector business concerns. RTA, and the technical committee members, which included the service boards, have provided data, previous studies, and input and feedback on various technical issues throughout the study.

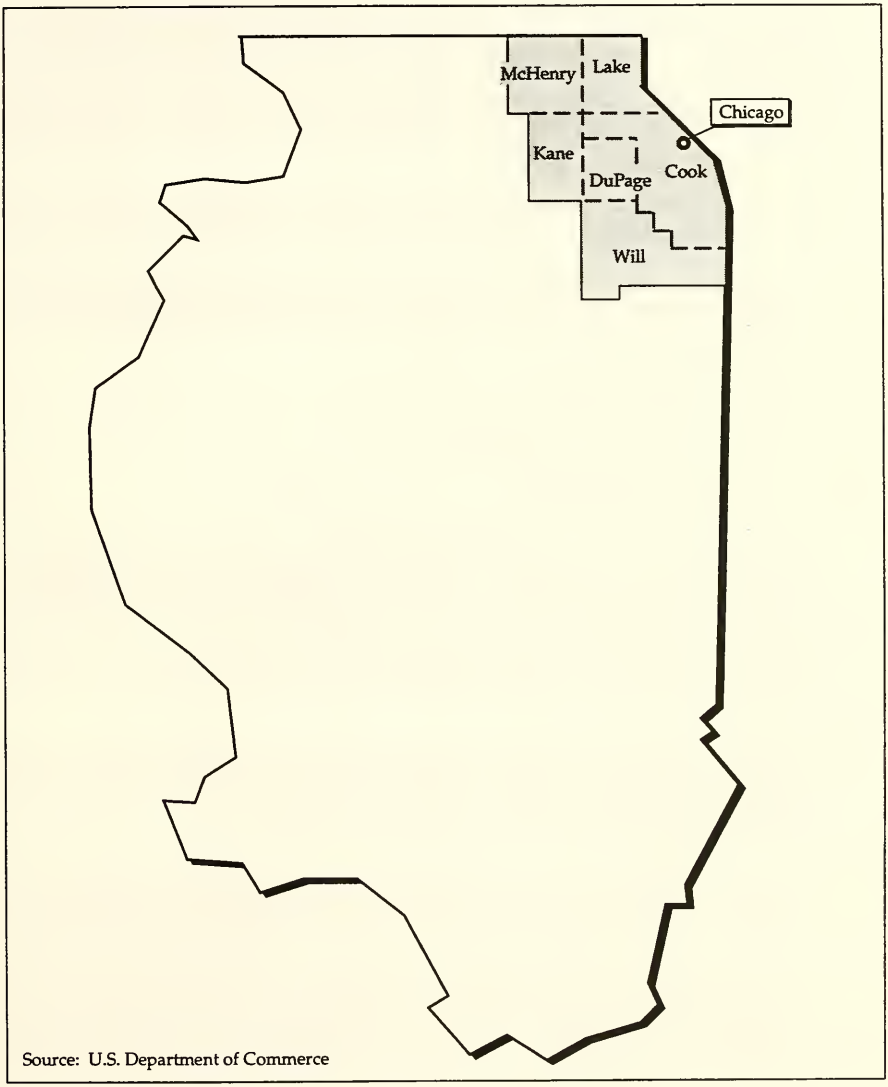
1.2 Study Area Description

The study focused on the economy of the Chicago Metropolitan area and the State of Illinois. The metropolitan area includes six counties: Cook, Lake, Will, McHenry, DuPage and Kane Counties. These are shown in Figure 1.1.

1.3 Alternative Scenarios

The relationship between public transportation and economic activity is complex, and RTA's services are part of many inter-dependent resources and factors which together support the regional economy and its potential for growth and expansion. As a way to understand how RTA contributes to the regional economy, it is useful to compare how the economy would respond under various scenarios for the future of RTA, and how differing levels of investment would affect transportation and therefore economic activity.

Figure 1.1 Study Area – Chicago Metropolitan Area



Source: U.S. Department of Commerce

The approach to this study was to conduct an analysis of four alternative public policies for the future investment in public transportation in the Chicago Metropolitan area.

The scenarios represent various potential future levels of investment in the RTA system over a 20-year timeframe. The scenarios are designed to reflect representative levels of funding, and to understand how the differing levels of investment will impact on transportation services, costs and benefits, and on the regional and Illinois economies. Their purpose is not to present long-term financial plans, but to develop reasonable alternative assumptions through which higher and lower levels of investment in RTA can be evaluated.

After several meetings with the RTA project staff, the Technical Committee, and the consultant, it was agreed that four scenarios would be evaluated for the project including:

- Baseline/Deterioration Scenario (which represents a base case against which the others are compared, although no one asserts that this scenario is the most likely choice of the region and the State);
- Disinvestment Scenario;
- State of Good Repair Scenario; and
- System Expansion Scenario.

Each of the scenarios was quantitatively defined in terms of annual RTA capital and operating costs and ridership. The estimates of these factors for each scenario are shown in Figures 1.2 and 1.3 and Table 1.1. All costs are shown in 1994 constant dollars, and do not include any adjustment for inflation. While it is important that budgets include consideration of inflation, viewing future dollar values in inflated dollars will simply increase the reported values, but will not change any of the forecasts or results, for purposes of this analysis.

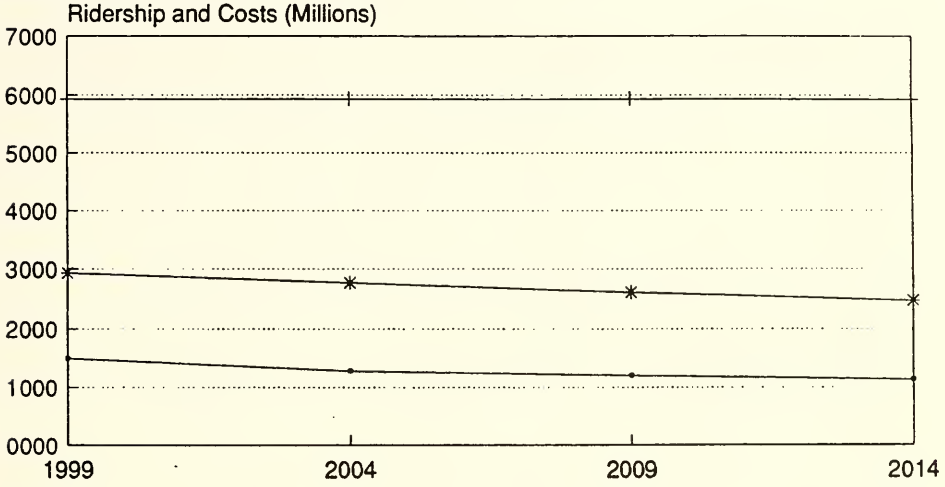
Whenever possible, capital, operating, and ridership numbers were based upon previous analyses by the RTA. In cases where estimates were not available, adjustment factors were applied to estimate costs or ridership impacts. The final figures were the result of a review by RTA, the Technical Committee, and the consultant.

Initially, a fifth scenario was considered which would represent a complete RTA system shutdown. After further discussions, it was agreed that because of the severe economical and social impacts of such an event that this scenario would not be formally evaluated.

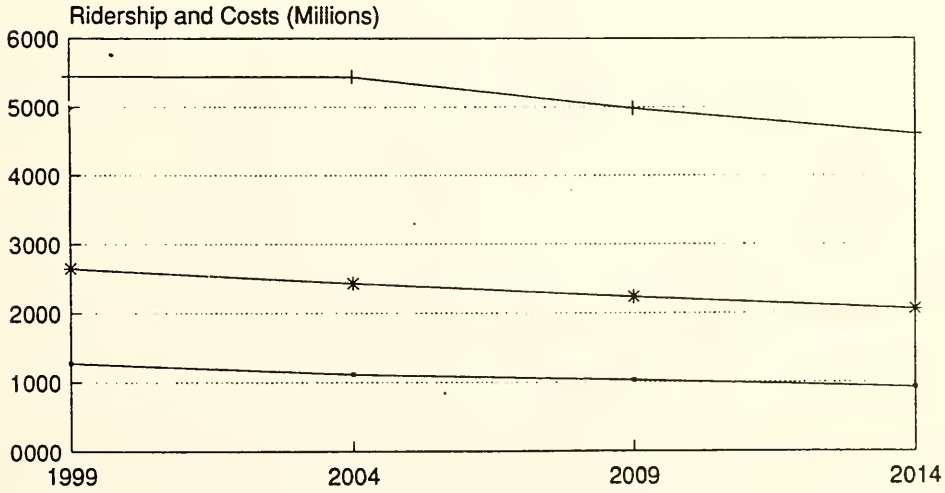
It is important to emphasize that the impact analysis of the four scenarios was conducted at the systemwide level only, and not for any individual components, and no conclusions should be drawn with regard to the impacts of potential discontinuance or initiation of any specific service or mode.

Figure 1.2 Scenarios for Future Investment in RTA Service

Baseline/Deterioration



Disinvestment



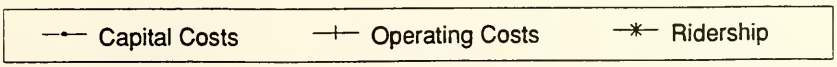
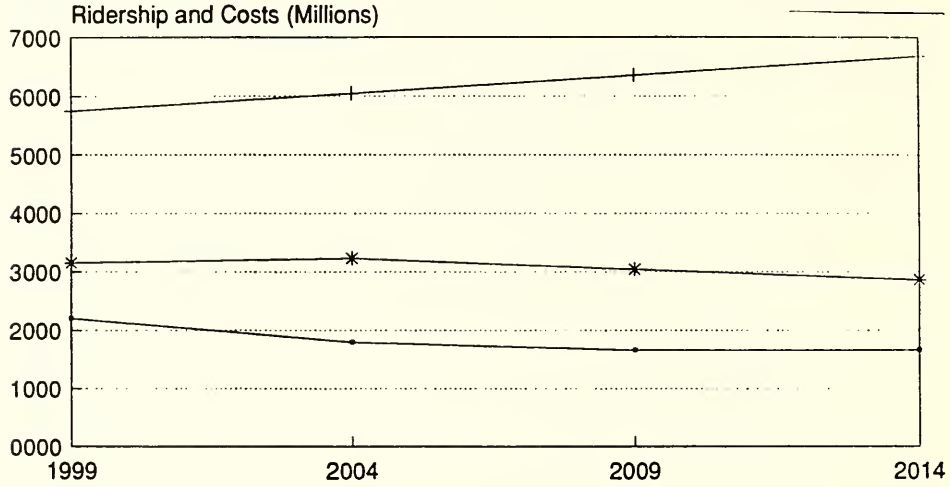


Figure 1.2 Scenarios for Future Investment in RTA Service (continued)

State of Good Repair



System Expansion

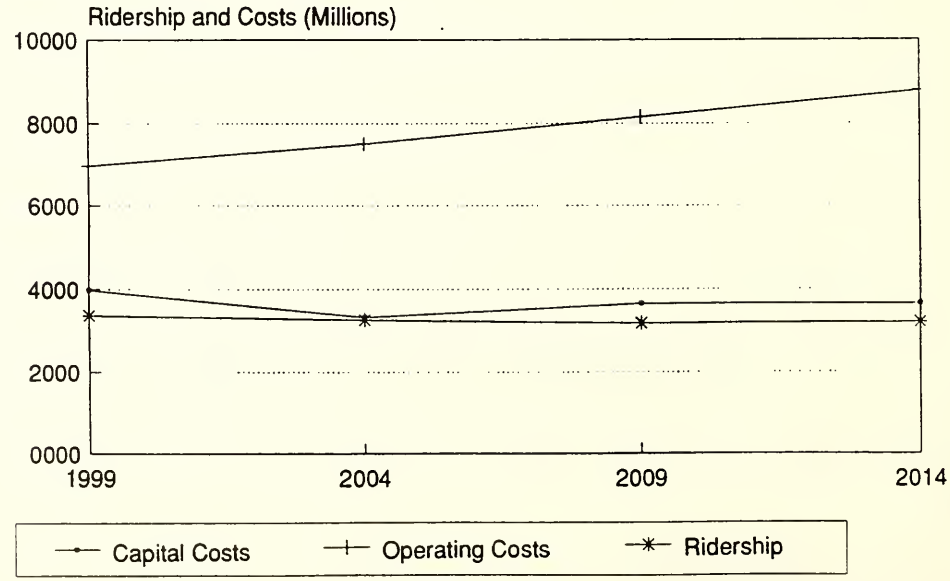


Figure 1.3 Comparison of Alternative Scenarios: Capital Expenditures (Millions)

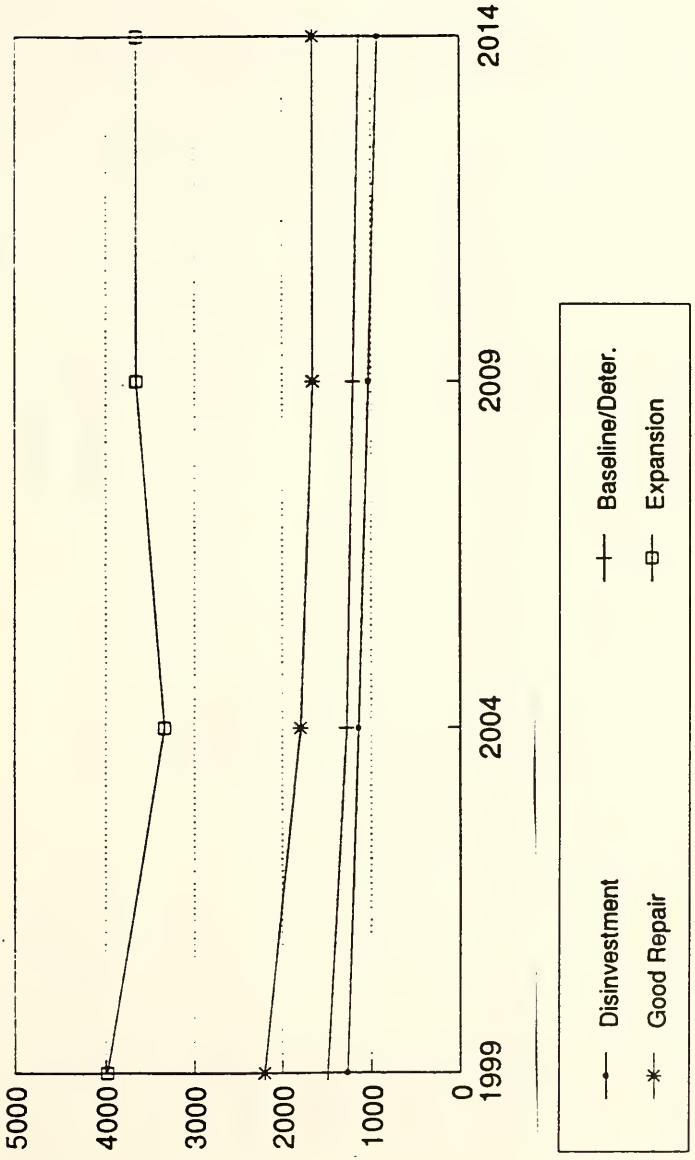


Figure 1.3 Comparison of Alternative Scenarios: Operation Costs (Millions) (continued)

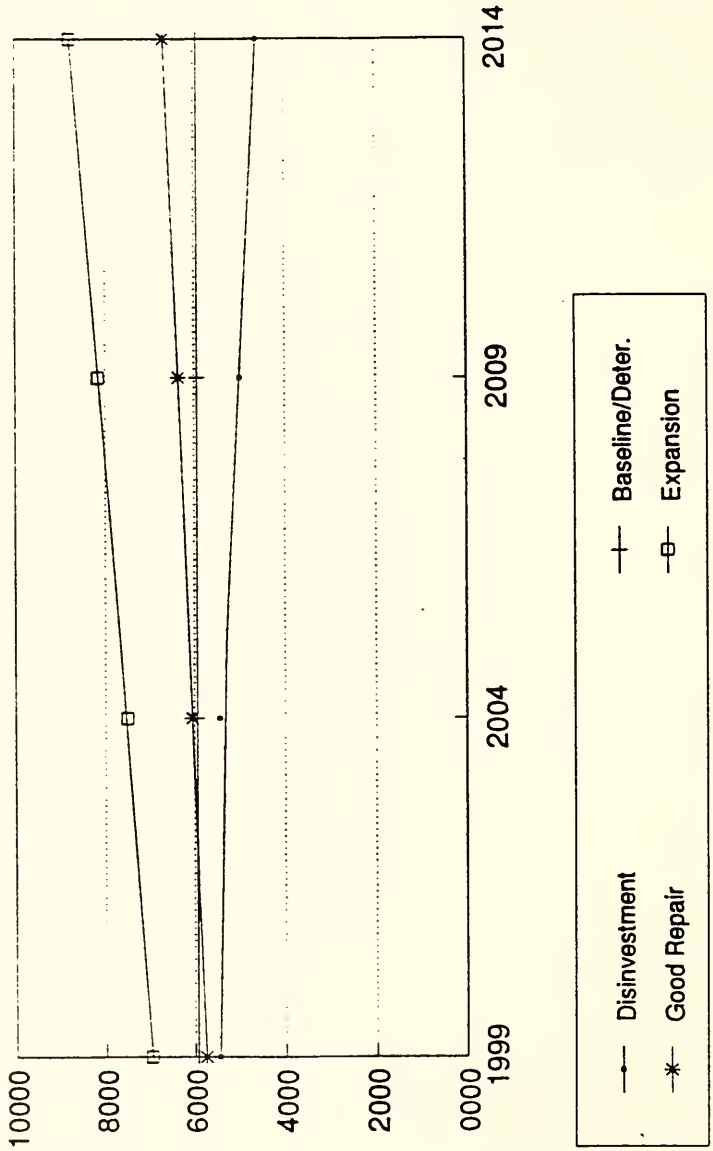


Figure 1.3 Comparison of Alternative Scenarios: Projected Ridership (Millions) (continued)

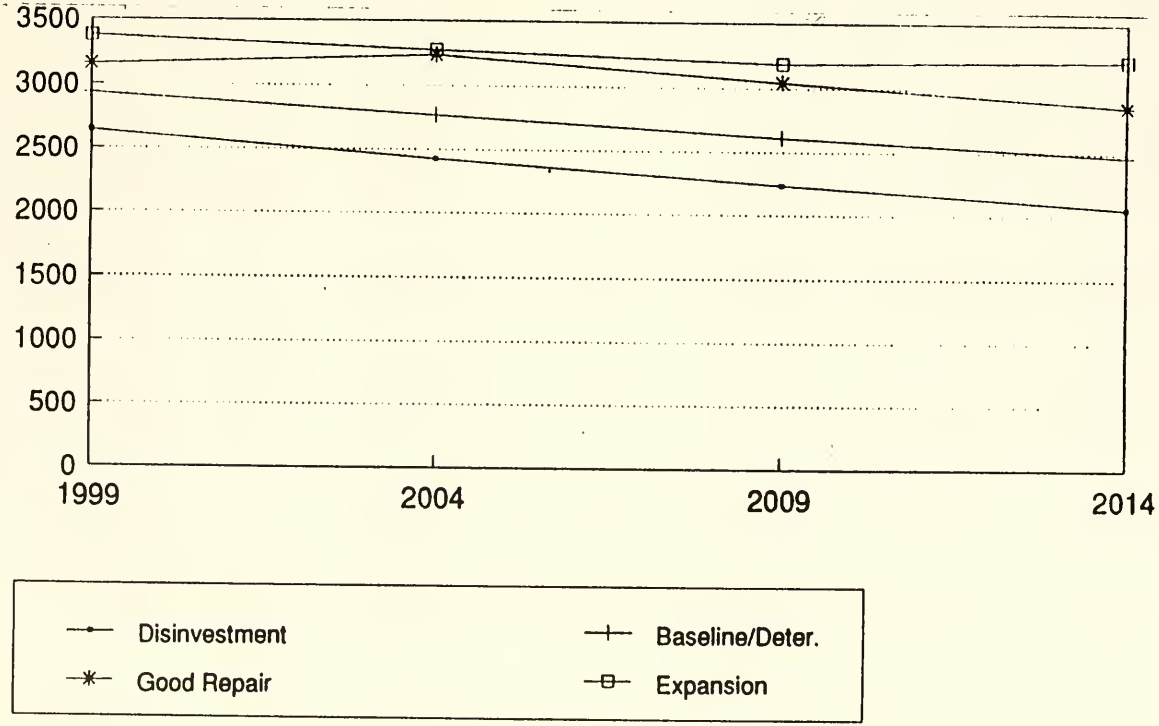


Table 1.1 RTA Expenditures and Ridership by Scenario

Scenario	Years 1-5 (1995-1999)	Years 6-10 (2000-2004)	Years 11-15 (2005-2009)	Years 16-20 (2010-2014)	20-Year Total
Baseline/Deterioration					
Capital Costs[1]	$ 1,497.00	$ 1,276.00	$ 1,206.50	$ 1,137.00	$ 5,116.50
Operating Costs[1]	$ 5,934.00	$ 5,934.00	$ 5,934.00	$ 5,934.00	$23,736.00
Ridership[2]	2,935	2,772	2,613	2,472	10,792
Disinvestment Scenario					
Capital Costs[1]	$ 1,273.00	$ 1,145.50	$ 1,031.00	$ 928.00	$ 4,377.50
Operating Costs[1]	$ 5,448.50	$ 5,440.00	$ 4,983.50	$ 4,611.00	$20,483.50
Ridership[2]	2,642	2,431	2,237	2,057	9,366
State of Good Repair Scenario					
Capital Costs[1]	$ 2,203.00	$ 1,797.00	$ 1,660.00	$ 1,660.00	$ 7,320.00
Operating Costs[1]	$ 5,751.00	$ 6,044.50	$ 6,353.00	$ 6,677.00	$24,825.50
Ridership[2]	3,155	3,235	3,045	2,865	12,300
System Expansion Scenario					
Capital Costs[1]	$ 3,983.00	$ 3,338.50	$ 3,661.00	$ 3,661.00	$14,643.50
Operating Costs[1]	$ 6,962.00	$ 7,508.00	$ 8,158.50	$ 8,785.50	$31,414.00
Ridership[2]	3,375	3,272	3,187	3,214	13,048

1 In millions of 1994 dollars.

2 In millions of riders.

The public transportation investment scenarios which were evaluated in this project were designed to represent a realistic range of potential levels of expenditure on capital equipment and operations. They utilized information from a variety of previous studies to provide forecasts of future conditions and service levels. In order to avoid any potential criticism that public transportation was evaluated under rosy assumptions, the scenarios were described using the most conservative of past estimates which had been made about future ridership on the RTA's various services. If higher estimates of future ridership had been used, the benefits of investments in public transportation facilities would also be higher than those developed for the scenarios using the most conservative forecasts.

The benefits which would have been calculated using higher forecasts of public transportation ridership would increase at least in proportion to the percentage increase in forecast ridership. The scenarios could have had approximately 20 percent more ridership if they were based on a forecast of modest increases rather than a substantial (over 15 percent) forecast of decreased ridership. The economic benefits of the investments, such as bringing the system to a state of good repair or of system expansion, would be at least 20 percent higher under assumptions of modest transit ridership growth. Likewise, the disbenefits of lower investments than the baseline would also be at least 20 percent greater. Since the benefits of increased investment are so outstanding, even using the most conservative forecasts of ridership, a firm conclusion can be reached that increasing the investment in public transportation returns benefits at an enormous rate.

1.3.1 Baseline/Deterioration Scenario

Under this scenario, the RTA system would be funded and supported at the current level of investment. This scenario assumes that no additional levels of funding for upgrading, expanding or improving services or stock will be made beyond the current plans. This scenario does assume the completion of the Wisconsin-Central commuter rail line, but no additional new or expanded services. This scenario represents an erosion of the current system and quality of service and operation over time, with loss of market share by public transportation as the lack of new investment results in continued system disrepair and deterioration.

This is the scenario which serves as the benchmark for the other scenarios, all of which represent relative increases or decreases compared to the baseline. The impacts on the transportation network and the economy are calculated for the other scenarios as compared to this baseline.

The capital expenditure forecasts used in this scenario were provided by RTA, and assume no renewal of the RTA bond programs. Over the 20-year period, total capital costs (in 1994 constant dollars) are approximately $5.1 billion. This scenario also includes the completion of the Wisconsin-Central commuter rail line in 1996, but does not include any other costs for new or expanded services. As Table 1.1 shows, on a year-by-year basis, capital expenditures decline over time, and the condition of the system begins to deteriorate.

Operating costs were estimated using the most recent 1994 operation expense projections provided by RTA. Costs are estimated to remain the same annually year by year, for a total of $23.7 billion through the year 2014. These figures and the capital figures do not include inflation.

Ridership projections were originally taken from the Financial Future Model developed by the RTA, then adjusted to reflect comments by the RTA and the Technical Committee. Over the 20-year analysis period, there are a total of 10.8 billion riders. Ridership starts at the current level of 591 million in year 1 and declines to 490 million in year 20. The declines in ridership which are shown in Table 1.1 are a result of deteriorating service and system condition caused by lack of capital expenditures in this scenario.

It is important to note that this base case assumption of declining ridership results in very conservative estimates of the benefits of transit investment under all scenarios. An assumption of constant or increasing ridership for the base case would result in higher total changes for each other scenario. In other words, if a scenario is superior to the base case under this analysis, it will be even more superior under other assumptions such as constant or increasing base case ridership. Likewise, if the scenario is worse than this base case, it will be even more disadvantageous under other base case assumptions.

1.3.2 Disinvestment Scenario

Under this scenario, the RTA system would be funded and supported at a reduced rate from the current level of investment, at a minimum level to keep the system in operation. Investment would be limited to the upkeep of essential system components. There would be no system upgrades or extensive rolling stock replacement, or other major investment. Over time, routes or services with declining ridership would be phased out.

Under this scenario, capital expenditures would decrease in years 1-5 at a rate of 15 percent, relative to the same time period in the Baseline/Deterioration Scenario. In the remaining years (6-10, 11-15, and 16-20), there would be a 10 percent decrease in investment from the previous time bracket. The total capital costs over the 20-year period are $4.4 billion, shown in Table 1.1. Capital costs were estimated by Cambridge Systematics.

Operating costs, under this scenario, would decrease in years 1-5 at a rate of 10 percent, relative to the Baseline/Deterioration Scenario. Operating expenses would also decrease in years 6-20, more gradually at first as services would not be discontinued immediately, and then more rapidly as services are shut down due to declining and low ridership. The total operating costs for the 20-year period would be $20.5 billion. These costs were estimated by Cambridge Systematics, based on available cost data and experience elsewhere.

Total ridership over the 20-year period would be 9.4 billion. Ridership would decline in years 1-5, at a rate of 10 percent relative to the Baseline/Deterioration Scenario. Ridership in years 6-10, 11-15, and 16-20 would decline by eight percent during each time period. These numbers are Cambridge Systematics' estimates, based on likely declines in ridership due to continued loss in the quality and availability of service.

1.3.3 State of "Good Repair" Scenario

Under this scenario, the RTA system would be funded and supported to bring the system to a state of "good repair," with sufficient investment to bring the current system to a point where it offers good service quality and is operating well. This would result in a system which operates better than it does today, but would not involve expansion of the system into new markets or improve the system beyond what has already been programmed.

The total capital costs for this scenario, over 20 years, are $7.3 billion. For this scenario, capital costs were estimated based on the Engineering Condition Assessment (ECA) document that was produced for the CTA, and the Metra bridge study document. The ECA cost estimates were adjusted to reflect 1994 constant dollars, and costs for rolling stock, station upgrades, and maintenance facilities were added. For Metra, bridge replacement and upgrade costs from the bridge study conducted for Metra were included, as well as rolling stock, station, and maintenance facility costs. Pace capital costs were assumed to consist primarily of new rolling stock purchases and upgrades, as well as shelter costs, and maintenance facility costs. The numbers were modified based on RTA-suggested revisions and Cambridge Systematics' estimates.

Operating costs for this scenario are $24.8 billion in total. Initially, increased capital investment was estimated to substitute slightly for operating expenses. As time goes on, operating expenses increase due to the need to continue to add services to meet increased demand due to higher quality services.

Under this scenario, overall ridership increases by approximately 14 percent over 20 years, in comparison to the Baseline/Deterioration Scenario, to a total of 12.3 million. It was estimated that new riders would be attracted over the years by the continued improvements in service quality and service levels.

1.3.4 System Expansion Scenario

Under this scenario, the RTA system would be funded and supported at a level to bring the system beyond "good repair," to include additional, expanded services, as well as rolling stock improvements. This would result in a system which operates at higher levels of service than it does today on existing lines, and includes expansion of the system into new markets. This study does not explicitly address the nature of those new markets and increased services, but views the expansion in terms of the overall system.

The total capital costs in this scenario were estimated at $14.6 billion over 20 years as shown in Table 1.1. The Future Agenda for Suburban Transportation (FAST) document was the source for capital requirements for the expansion and addition of new Metra and Pace services, adjusted to 1994 constant dollars. Costs for CTA were estimated based on the relative distribution of costs for the three service boards in other scenarios. Additional adjustments were made to expansion costs, including elimination of some of the potential costs for at-grade road crossings.

Under this scenario, total operating costs over the 20-year period were estimated at $31.4 billion. Operating costs were assumed to increase the following rates over the Baseline/Deterioration Scenario. In years 1-5, they would grow by 15 percent over Baseline/Deterioration; in years 6-10, 18 percent; in years 11-15, 22 percent; and in years 16-20, they would grow 25 percent over the Baseline/Deterioration Scenario. These were based on Cambridge Systematics' estimates of the impacts of enhanced service levels.

Ridership is also estimated to increase significantly under this scenario as new and expanded services are offered. Increases over the Baseline/Deterioration would be: 15 percent in years 1-5; 18 percent in years 6-10; 22 percent in years 11-15; and 30 percent in years 16-20. Total ridership for the 20 year period is 13.05 billion under this scenario.

2.0 Current Conditions

2.0 Current Conditions

This section profiles the current conditions of the RTA system, and the economic and transportation conditions which serve as a basis for the impact analysis.

2.1 RTA Services

The RTA's three Service Boards (CTA, Metra and Pace) combine to make the second largest rail transit system and the third largest bus system in North America. The RTA's combined assets, without real estate, are valued at nearly $18 billion in current dollars. RTA system ridership totaled 603 million in 1992. Of this total approximately 82 percent or 494 million passengers are attributable to CTA, 12 percent or 70 million passengers to Metra, and seven percent or 39 million passengers to Pace.

RTA's current physical plant and services include:

- Over 1,200 rapid transit cars;
- 906 commuter rail cars;
- 130 locomotives;
- Over 3,000 buses;
- Nearly 390 bus routes;
- Over 700 rail route miles;
- Accessible service to the mobility limited; and
- Demand responsive paratransit service for passengers unable to ride conventional public transportation vehicles.

The RTA system includes an extensive rail and bus transportation network within the City of Chicago and the six county Northeastern Illinois area. Peak-hour service includes local Pace bus feeder service to Metra and CTA rail stations, express service to major employment centers, and reverse commuter services which serve city residents. The CTA provides buses with wheel chair lifts and Rapid Transit Stations elevators, as well as demand responsive paratransit service. Pace offers demand responsive paratransit service,

"Dial-a-Ride," and a Vanpool Program for groups of from five to 15 people who are interested in commuting to and from work together. Metra commuter rail cars have wheelchair lifts and wider doorways. Metra has 173 accessible cars on order for the diesel lines and is making at least one station on each line accessible to wheelchairs.

Many social service agencies and private and county-sponsored paratransit organizations provide transit access throughout the region. These services are typically targeted to specific agency clients, including handicapped and elderly riders. In addition, an extensive school bus network serves Chicago and Northeastern Illinois public and private schools. School bus companies also provide buses with an aide and buses with wheel chair lifts for special education students.

Use of public transportation in Northeastern Illinois is very high. On a typical weekday in 1992, the RTA system carried 2.1 million passenger trips. Approximately 78 percent of the people traveling to downtown use public transportation. (See Table 2.1.) Of those traveling to the central business district for work, 43 percent use CTA. In the metropolitan area overall, 14 percent use public transportation to get to work, as compared to 29 percent for the City of Chicago as a whole. (See Table 2.2.)

2.1.1 CTA

The CTA operates the second largest public transportation system in North America. CTA carried 494.0 million or 82 percent of the region's total riders in 1992. Ridership on CTA has declined since 1985, as shown in Table 2.3, from a total of 642 million. On an average weekday, CTA carries 1.7 million passengers, including paratransit ridership.

CTA's current physical plant and services include:

- 2,150 buses;
- 140 bus routes;
- A total of over 2,135 miles of bus routes;
- 12,800 posted bus stops;
- Over 23,600 bus trips each day;
- Over 1,850 train trips each day;
- 224 rapid transit route miles;
- 1,237 rapid transit cars;
- 7 radial rail lines;

Table 2.1 Access Mode to Downtown

A. Access for All Trips to Downtown, Including Metra

Mode	Percent of Total Trips	Percent of Total Trips
CTA Bus	18.9	
CTA Rail	28.4	
CTA Total		47.3
Metra	30.6	
All Transit		77.9
Auto	21.1	
Walk/Bike	1.0	
Total	**100.0**	

B. Mode of Travel to Downtown by Trip Purpose, Not Including Metra

	Work	Home	Lunch	Shop	Business	Other
CTA Bus	35.4%	14.2%	2.0%	23.8%	12.2%	12.4%
CTA Rail	48.7	11.4	1.8	11.8	10.5	15.8
All CTA	**43.3**	**12.5**	**1.9**	**16.6**	**11.2**	**14.4**
Auto	40.9	9.9	3.7	18.0	17.3	10.2
Walk/Bike	68.0	4.2	2.8	9.7	9.7	5.7
Total	**51.5**	**9.1**	**2.6**	**14.4**	**11.9**	**10.5**

Source: Characteristics and Transportation Attitudes of Downtown Chicago Pedestrians, CTA, April 1989.

Table 2.2 Access Mode to Work in the Metropolitan Area and in the City of Chicago

Mode	Percent of Total Workers Using Mode	
	City of Chicago	Metropolitan Area
Car, Truck, Van	61%	78%
Drive alone	46	66
Carpool	15	12
Public Transportation	29	14
Bus/Streetcar	19	7
Subway	8	3
Rail	2	4
Bike/Walk	6	4
Other	4	4

Source: 1990 Census of Population and Housing.

Table 2.3 RTA System Ridership, 1985 and 1990 (All Numbers in 000,000s)

Carrier	1985 Number	1985 Percent of Total	1990 Number	1990 Percent of Total	1992 Number	1992 Percent of Total	Percent Change 1985 to 1990	Percent Change 1990 to 1992
CTA Total	642.8	86.6%	569.9	83.9%	494.0	82.0%	-11.3%	-13.3%
Bus	487.9	65.6	423.2	62.3	---	---	-13.3	NA
Rail	155.9	21.0	146.7	21.6	---	---	-5.9	NA
Metra	61.8	8.3	69.3	10.2	70.1	12.0	12.1	1.0
Pace	38.4	5.2	40.4	5.9	39.3	7.0	5.2	-3.5
Total	**744.0**	**100.0**	**679.6**	**100.0**	**603.4**	**100.0**	**-8.7**	-11.2

Source: RTA Annual Budget and Five-Year Program documents.

- A total of 144 rapid transit stations; and
- 24-hour service on the bus and rapid transit systems.

Service levels and coverage vary by day-of-week and by time-of-day.

The CTA's service area includes the 220 square miles of the City of Chicago, plus 38 Cook County suburbs, with a total population of 3.7 million persons. The CTA's service area represents 51 percent of the RTA service area population of 7.3 million.

Figure 2.1 shows the rapid transit lines of the CTA system.

2.1.2 Metra

In 1992, Metra, the commuter rail service for northeastern Illinois, carried approximately 70.1 million passengers. As shown in Table 2.3, this represents a growth from 61.8 million in 1985, with continued growth from 1990 to 1992. On average 261,000 passengers traveled on Metra every weekday.

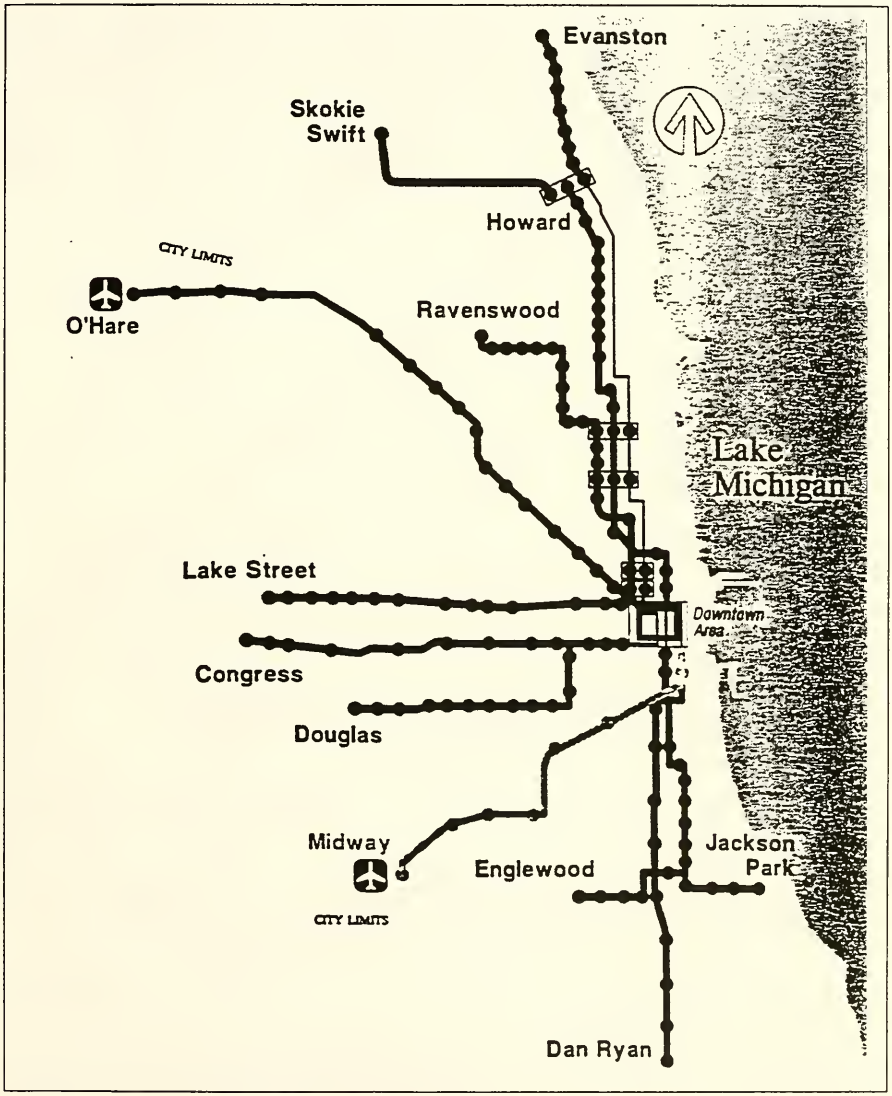
Metra's current physical plant and services include:

- 683 coaches;
- 223 electric cars;
- 130 locomotives;
- Approximately 500 route miles;
- 1,200 track miles;
- 234 stations; and
- Daily service provided on most rail lines with limited service evenings and weekends.

Metra's service area is composed of over 100 communities in the 3,700 square mile Northeastern Illinois region. Metra's eleven separate lines and four branch lines run north, west and south of the Chicago Central Business District.

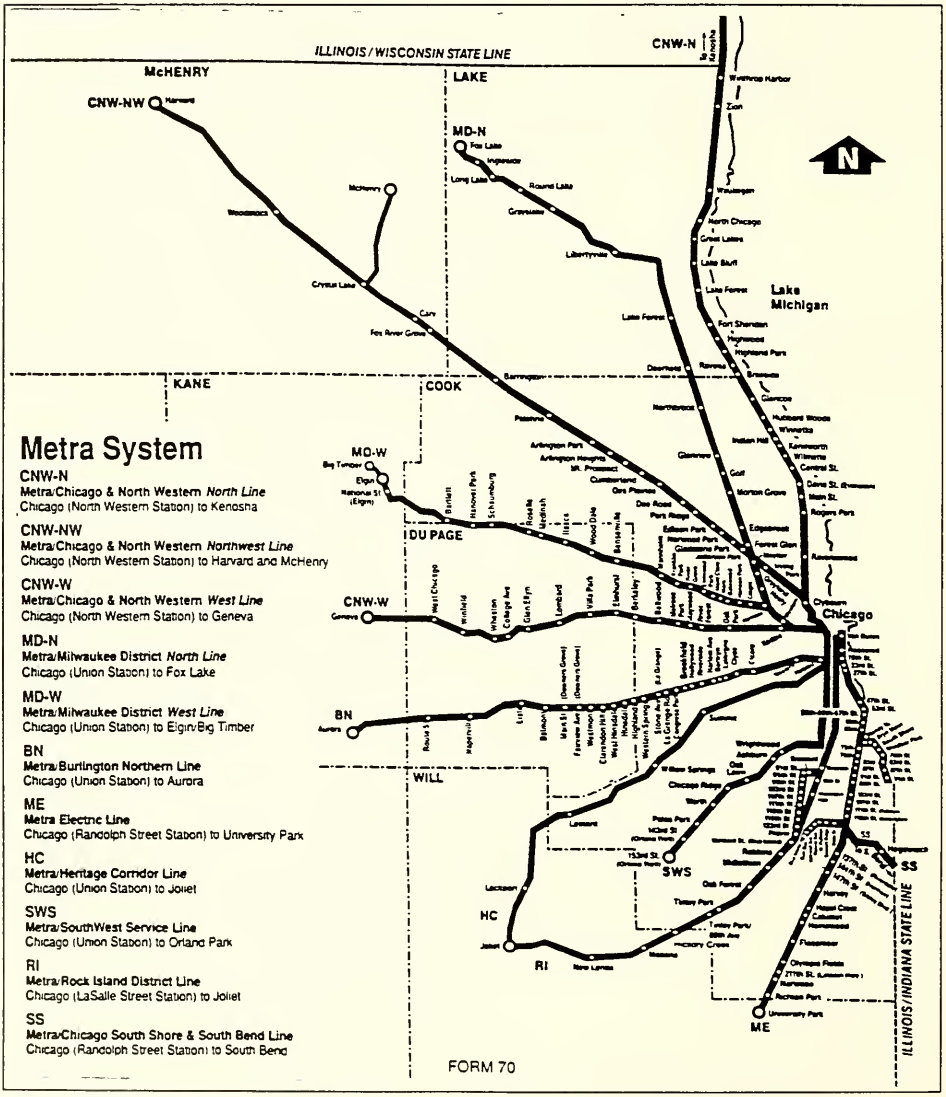
Figure 2.2 shows the Metra System.

Figure 2.1 CTA Rapid Transit System



Source: CTA

Figure 2.2 Metra System



Source: Metra

2.1.3 Pace

The Pace bus system not only links the suburbs but also provides municipal bus service for each of the satellite cities ringing the six-county region. Pace system ridership in 1992 was 39.3 million. Pace ridership grew from 38.4 million in 1985 to 40.4 million in 1990, but declined slightly between 1990 and 1992, as shown in Table 2.3. On an average weekday Pace carried 138,200 fixed route passengers and 6,065 paratransit passengers.

Pace's current equipment and services include:

- 611 fixed route buses;
- 304 paratransit vehicles;
- 250 fixed routes;
- 22 million annual vehicle miles in 1992;
- Over six million paratransit vehicle miles of service;
- 60 local and multi-township Dial-A-Ride services;
- Two demonstration projects; and
- Seven regional Special Services for the Mobility Limited.

Service levels and coverage vary by day-of-week and time-of-day.

Pace's service area includes suburban Cook, DuPage, Kane, Lake, McHenry and Will Counties, an area of 3,446 square miles with a population of approximately 4.5 million.

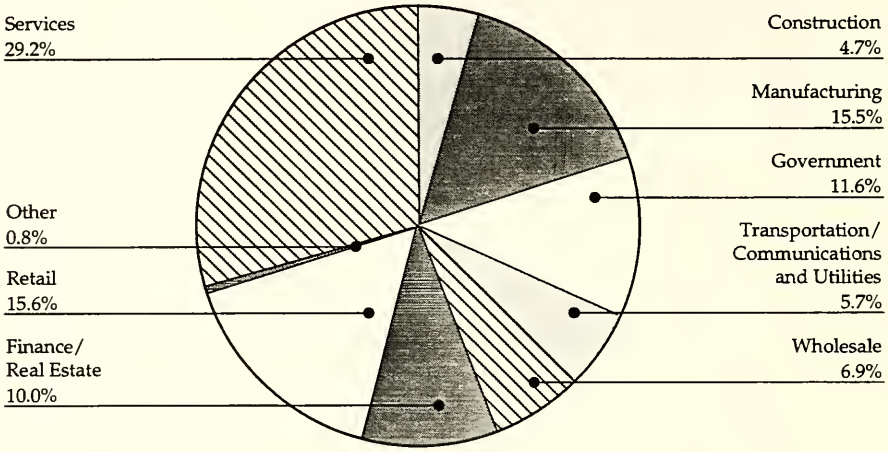
2.2 Regional Economy

To understand the RTA's importance to the regional economy, it is necessary to understand the special features of the Chicago metropolitan area economy.

2.2.1 Current Profile

The Chicago Metropolitan Area ranks third in the U.S., in both total population (7.2 million) and employment (3.7 million). Figure 2.3 shows a profile of metropolitan area employment by type of business. In keeping with current trends in major metropolitan

Figure 2.3 1990 Employment by Industry – Chicago Metropolitan Area



Source: Regional Economic Models, Inc.

areas today, over half (56.5 percent) of all employment in the six-county Chicago region is in services, and retail and wholesale trade.

Relative to the national average, the Chicago area has higher concentrations of employment in pharmaceutical and chemical products, transportation and air transportation, banking, insurance, and miscellaneous business services. The Chicago area has lower than national average concentrations in hotels and amusements, and is near the national average in manufacturing and health care. (See Figure 2.4.)

These concentrations reflect the Chicago metropolitan area's locational advantages which enable the region to successfully compete for those business sectors, which then provide their products and services to many customers outside of the Chicago region. The locational advantages include a skilled work force, an accessible labor market, a good internal transportation system, and the region's status as a national transportation hub.

To sustain its position of importance for these industries, Chicago must maintain its locational advantages. This is particularly important because the Chicago metropolitan area's electric utility rates for commercial and industrial users are typically 12 percent higher than in other midwestern urban areas.

2.2.2 Past Trends

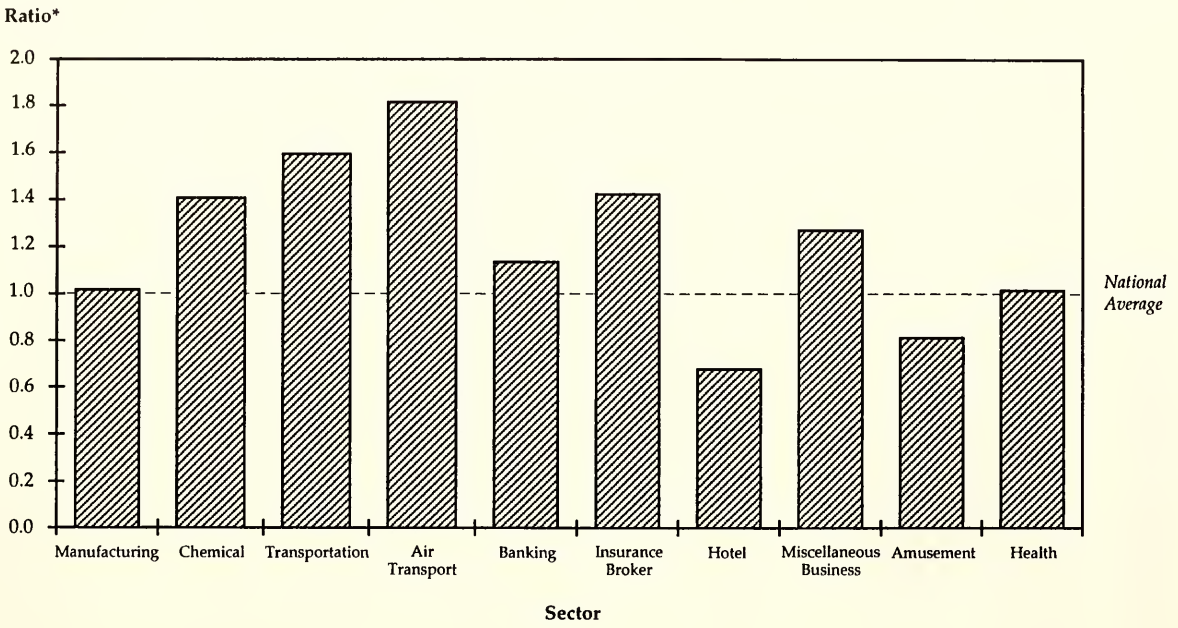
Between 1980 and 1990, employment in the Chicago region grew 17 percent, increasing the number of total jobs from 3,695,100 to 4,316,200. (See Table 2.4.) The composition of regional employment also underwent changes. In keeping with national trends, the Chicago region lost 142,200 jobs in traditional manufacturing industries. These included job losses in industries that had been strong in the region, such as the manufacturing of iron and steel, fabricated metal, and machinery.

Also consistent with national trends, employment in Chicago area service industries grew substantially between 1980 and 1990. Particularly important for the Chicago area was the growth in important emerging industries: the health services industry grew by 48,584 jobs, business services grew by 167,226 jobs, and professional service gained 101,224 net jobs. Increases also occurred in air transportation, communications, banking, insurance, finance and real estate, as well as construction, and wholesale and retail trade. These trends reflect changes in the area's economic base, moving toward an "advanced services economy," with declines in factory jobs and increases in office jobs.

2.2.3 Future Prospects

Forecasts for the Chicago metropolitan area economy are provided by the Northeastern Illinois Planning Commission (NIPC), the U.S. Bureau of Economic Analysis, and the REMI Model of Regional Economic Models, Inc.

Figure 2.4 Employment Strength, Selected Sectors – Chicago Metropolitan Area, 1990



* Ratio = Percentage of Chicago region employment in sector/Percentage of U.S. employment in sector.

Source: Calculations based on Illinois Department of Employment Security and U.S. BEA data.

Table 2.4 Chicago Metropolitan Area Employment: Past Trends and Future Forecasts

Sector	Employment in Thousands				
	1970 Actual	1980 Actual	1990 Actual	2010 Forecast	2015 Forecast
Manufacturing	947.6	811.3	669.1	573.0	539.3
Durables	589.2	507.7	379.7	294.1	269.3
Non-durables	358.3	703.5	289.4	278.9	270.0
Non-manufacturing	1,979.8	2,395.3	3,140.2	4,176.6	4,329.4
Mining	6.0	8.1	6.5	5.9	5.6
Construction	141.4	144.3	201.3	232.7	244.8
Transportation, Public Utilities & Communications	210.2	204.0	244.3	279.6	284.5
Finance, Insurance & Real Estate	248.9	333.6	431.2	537.0	554.6
Retail Trade	509.3	573.4	673.8	783.2	796.2
Wholesale Trade	236.2	267.3	297.0	334.1	338.3
Services	621.0	852.6	1,262.5	1,969.2	2,068.5
Agriculture, Forestry & Fishing Services	6.7	11.8	23.7	34.9	36.8
Total Government	434.5	478.9	499.8	575.7	591.9
State and Local Govt.	294.4	366.2	375.3	480.1	496.1
Federal Government					
Civilian	79.5	70.8	77.4	66.2	65.5
Military	60.6	41.9	47.1	29.4	30.3
Farm Employment	10.1	9.6	7.0	5.1	4.9
Total Employment[1]	3,372.0	3,695.1	4,316.2	5,330.4	5,465.6
Population[1]	6,985.9	7,113.3	7,275.5	8,510.4	8,895.0

[1] Corresponding projections for the metropolitan area by the Northeastern Illinois Planning Commission, for year 2010 are 4,579,000 for employment and 8,328,000 for population. (Source: July 1988 projections.) No forecasts are available for year 2020. The REMI forecast shows higher employment and population growth than the NIPC forecast because it is based on updated BEA data which shows relative trends toward higher labor force participation rates. Also, REMI employment includes government and farm employment. NIPC does not include either.

Source: Regional Economic Models, Inc.

REMI forecasts are used for this analysis, as they are available out to 2015, the last year for this analysis. NIPC forecasts are only available out to 2010. REMI data on employment and population are somewhat higher than regional estimates because it is based on updated BEA data which shows trends towards higher labor force participation and accompanying population growth.

Forecasts of future employment show regional growth in employment from 4,316 million in 1990 to 5,466 million in 2015, an increase of 27 percent, as shown in Table 2.4. Population is expected to grow 22 percent, from 7,275 million in 1990 to 8,895 million in 2015.

Within these overall regional totals are changes in the spatial pattern of activity which have implications for transportation. Three-quarters of the 1980 to 2010 population growth is forecast to occur in the five collar counties. Employment is projected to increase across the region, with the largest absolute gains in suburban Cook, Chicago and DuPage. The growth in Chicago employment is a result of the dramatic growth forecasted for Chicago central area employment which more than offsets an employment decline in the remainder of the city.

Long-term projections indicate expectations of more structural adjustment for the Chicago area economy. (See Figure 2.5.) Future expansion of the Chicago area's economic base is expected to concentrate in health; amusement and recreation services; finance including banking and insurance; chemical manufacturing, particularly pharmaceuticals and soap products; air transportation; wholesale and retail trade; conventions and hotels; education and business services.

2.3 RTA's Importance for Regional Business

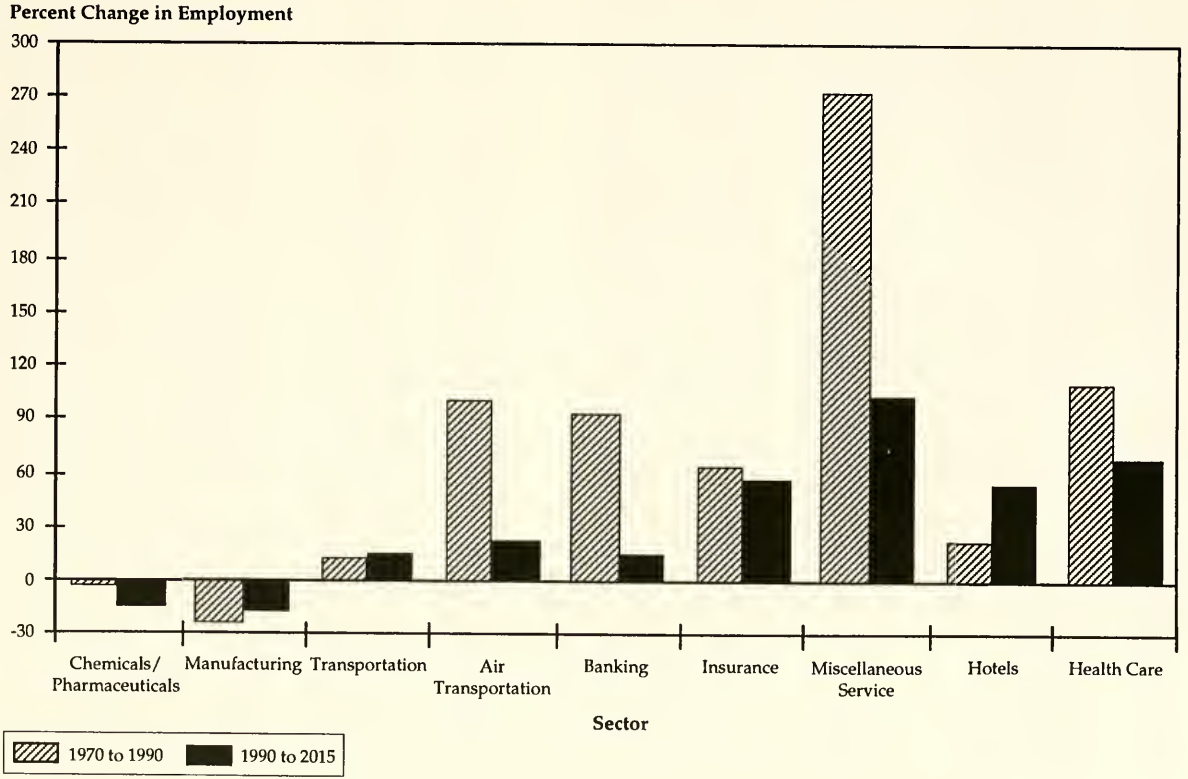
2.3.1 Business

An important aspect of understanding the RTA's role in the regional economy is the extent to which workers depend on RTA services to get to and from their jobs. It is clear from various data sources, as well as interviews, that RTA services provide an important link for businesses to access labor.

A telephone survey of riders and non-riders summarized in the CTA report 1990 Traveler Behavior and Attitudes Survey, found that 44 percent of CTA riders travel to their work places, 15 percent travel to school, 15 percent take shopping trips, 13 percent take social trips, and 13 percent travel on personal business.

An assessment of Metra's riders was conducted in 1985 using a combination of survey data and an analysis of 1980 Census data. The Commuter Railroad Usage and Mode Choices in the Chicago Area and an Analysis of the Components of a Marketing Plan for the Commuter Railroads of NIRC (Metra) found that 91 percent of Metra riders are traveling to work; two percent are traveling to school; and six percent are taking other trips.

Figure 2.5 Past Trends and Future Forecasts for Employment Changes in the Chicago Metropolitan Area, for Selected Sectors



Source: Regional Economic Models, Inc. and U.S. Bureau of Economic Analysis.

PACE's 1989 User Survey, found that 78 percent of all trips are work trips; nine percent are school trips; and the remainder are trips to other destinations.

Public transportation is particularly important for businesses in the City of Chicago and the Central business district. As Table 2.2 showed earlier, 29 percent of those working in the City of Chicago rely on public transportation, as compared to 14 percent in the metropolitan area as a whole. Car ownership is also lower in the City, making public transportation a more important form of access to work by those living in the City. (See Table 2.5.) Thirty-four percent of households in the City of Chicago do not have access to a car, compared to 17 percent in the metropolitan area.

National data from the U.S. Census further illustrates the relationship between transit usage and type of occupations, including blue collar, white collar and service occupations. (See Figure 2.6.) Service occupations are most highly dependent on transit. This is significant in light of the domination of the service sector in the Chicago economy.

The access to jobs the RTA provides is clearly critical to the region, given the characteristics of the regional economy previously described, which includes a sizeable service sector, as well as retail and finance/real estate industries. In particular, a key advantage of downtown locations for clerical offices and professional services is centralized access to a large labor pool. This access is a major reason that Chicago's Central Business District is home to a high concentration of banking, insurance and other specialized professional and business services. (See Table 2.6.) For example, finance, insurance and real estate employment comprises 35.6 percent of the CBD employment base, compared to 11.4 percent of the metropolitan area base.

The importance of transit service to business is further demonstrated by figures compiled in the document Who Rides The CTA?, published in 1992. In 1990, 70 percent of Chicagoans and 27 percent of suburbanites in the CTA service area were CTA users.

The number of work trips coming into Cook County continues to grow, making Cook County the continuing leader in attracting work trips from other counties in the region. Census work trips imported into Cook County have increased from 199,593 in 1970 to over 424,755 in 1990. (See Figure 2.7.)

Many businesses rely on the RTA to bring customers or clients to their establishments. Retail stores, particularly downtown, have a large portion of customers coming to shop using the RTA. The Who Rides The CTA? survey found 15 percent of survey respondents were taking shopping trips. Health care clinics and hospitals also rely on the RTA to transport workers, patients and visitors. The Medical Center complex on Chicago's west side is one of the largest concentrations of medical facilities in the world. The Center is served by two CTA rail lines and several bus routes. The survey found 40 percent of travelers to the west side Medical Center use CTA. Of these, 37 percent work at the hospitals, 45 percent are patients and 18 percent are coming to visit an inpatient.

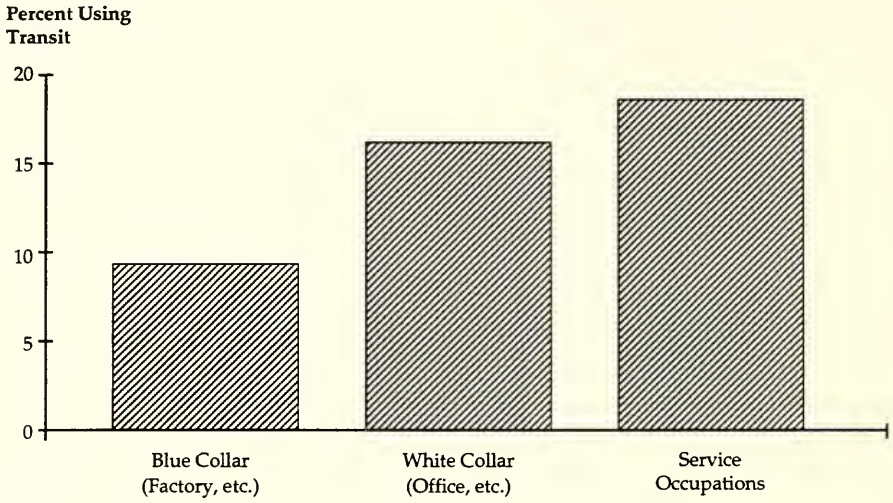
RTA riders also include a significant number of reverse commuters traveling from Chicago to jobs in the suburbs. For example, on an average weekday between July 1992 and June

Table 2.5 Car Ownership in the Metropolitan Area

Number of Cars Owned By Household	Percent of Households	
	City of Chicago	Metro Area
None	34.4%	17.3%
1	41.1	35.7
2	19.0	34.2
3	4.2	9.4
4	1.0	2.6
5 or more	.3	.8

Source: 1990 Census of Population and Housing.

Figure 2.6 Dependence on Public Transportation, by Occupation (Average of 25 Largest Urbanized Areas)



Source: Demographic Change and Worktrip Travel Patterns, UMTA Technical Assistance Program, 1985, using 1980 Census, Public Use Sample

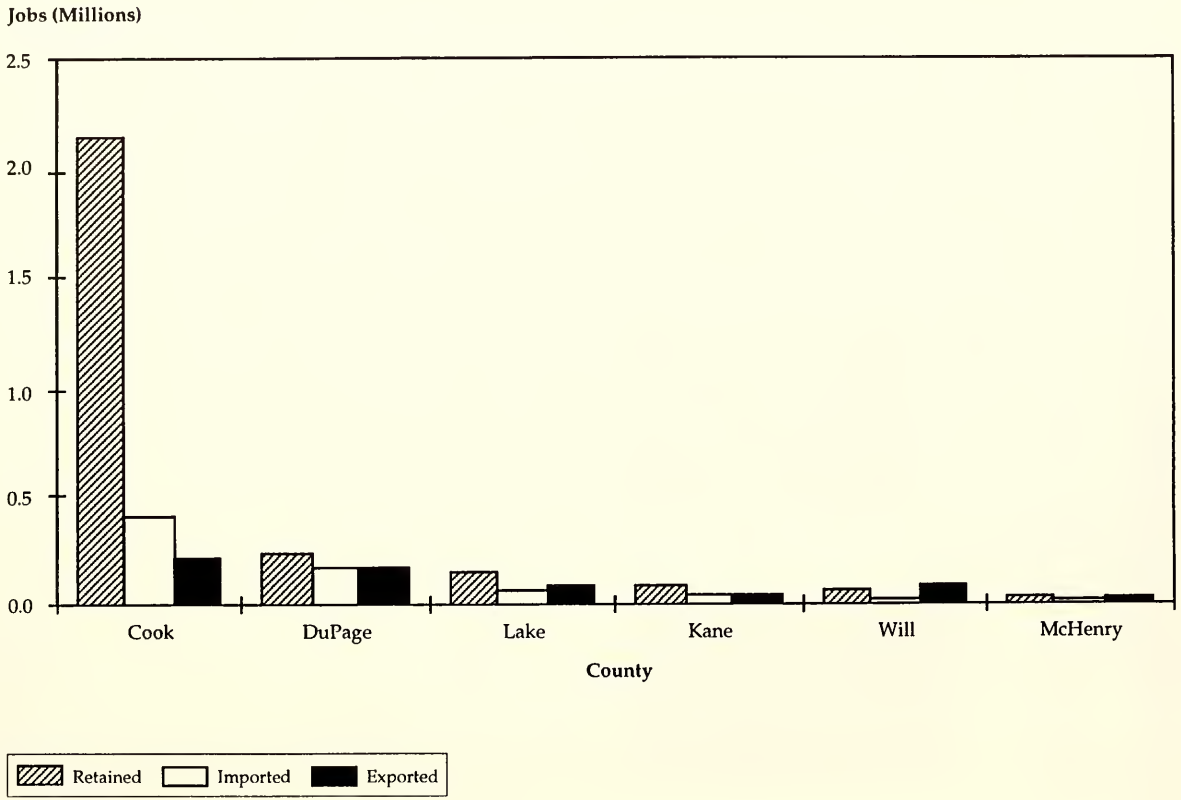
Table 2.6 Profile of Chicago Downtown and Metropolitan Employment

	Percent of Total Employment		
	CBD[1]	Outer Ring[1]	Metropolitan Area[2]
Manufacturing	4.9%	13.1%	17.7%
Mining	0.4	0.0	0.2
Construction	0.9	2.7	5.3
Transportation, Public Utilities, Communications	7.3	8.8	6.5
Wholesale	3.6	7.5	7.8
Retail	7.3	11.5	17.8
Finance, Insurance & Real Estate	35.6	16.9	11.4
Services	40.0	39.3	33.3
Total Employment	**250,393**	**282,404**	**3,785,700**

[1] NIPC.

[2] Regional Economic Models, Inc.

Figure 2.7 Work Trips by County, 1990 – Trips Retained, Imported, or Exported



1993, 7,965 Metra passengers reverse commuted to work, making up 3.5 percent of the average peak weekday ridership. Off-peak ridership is also a substantial portion of the total. Average off-peak ridership for a seven-day week was 88,540, or 16 percent of average weekly ridership.

Interviews with area business and economic development officials confirm the importance of labor access to making and keeping downtown business locations attractive and well-functioning. The interviews found that RTA is a critical component for that labor access. The interviews also suggested that the lack of RTA access elsewhere in the metropolitan area makes it more difficult to get workers to and from work.

2.3.2 Tourism

Tourism is an important sector of Chicago's regional economy. In 1992, 25,000,000 visitors came to the Chicago metropolitan area and tourism directly contributed $10.3 billion to the region's economy. (See Table 2.7.) In 1993, 3.7 million people attended 35,700 conventions, trade shows and corporate meetings in Chicago. These visitors spent $2.9 billion on regional goods and services. Overall, of the 25 million visitors to the region, it is estimated that 44.5 percent are tourists, 32.5 percent are business travelers, and 23 percent are attending conventions and meetings. The RTA plays a key role in supporting these various tourist activities, depending on the type of trip and the trip purpose.

In May 1993, ground was broken on a $987 million expansion of McCormick Place Convention Center. The McCormick Place expansion is expected to add $1.6 billion to Chicago's economy and to generate 12,000 permanent jobs. The McCormick Place expansion and Navy Pier redevelopment will accommodate an annual increase of 200,000 and 160,000 conventioneers, respectively. Spending an average of $760 per stay, the 360,000 new visitors will contribute nearly $273.6 million to annual regional sales. In addition to conventioneers, Navy Pier is projected to attract 2.8 to 3.8 million tourists per year with accompanying retail sales of $40 million. The proposed Central Area Transit Distributor will improve access to McCormick Place, Navy Pier and Chicago's downtown hotels by linking them with one another and the O'Hare and Midway rapid transit lines.

An important reason for travelers to use the RTA system is for airport access. Chicago's two major airports, O'Hare and Midway, are served directly by CTA rapid transit lines. The airport links and rapid transit and bus access to attractions within the city are marketed to visitors in promotional literature and play an important role in attracting these visitors. Ground travel surveys conducted for CTA show that 53 percent of those using O'Hare are traveling for business, 29 percent are traveling for vacation, and 18 percent are traveling for other purposes. Of those traveling for business, 5.3 percent use CTA; of those traveling for pleasure, 5.6 percent use CTA.

Chicago is a premier destination for international travel. O'Hare's new international terminal opened in October 1993, and international travel to Chicago is expected to increase significantly in the next decade. Illinois attracted an estimated 1,323,000 international visitors in 1992, up 11 percent from 1991.

Table 2.7 Tourism in the Chicago Metropolitan Area

A. Overall Trips in 1992

County	Person Trips	Expenditures
Cook	21,266,551	$ 8,731,850,000
DuPage	2,091,255	858,650,000
Lake	952,262	390,990,000
Kane	247,107	101,460,000
Will	246,255	101,110,000
McHenry	196,570	80,710,000
Total	**25,000,000**	**$10,264,770,000**

B. Trips by Type of Accommodation and Purpose

	Accommodation Type			
Trip Type	Hotel/Motel/B&B	Visiting Friends and Relatives	Day Trip	Total
Tourist	2,312,000	6,546,800	2,266,200	$11,125,000
Business	2,728,000	4,432,700	964,300	8,125,000
Convention/Meeting	2,460,000	2,020,500	1,269,500	5,750,000
Total	**7,500,000**	**13,000,000**	**4,500,000**	**$25,000,000**

Sources: A. "The Economic Impact of Travel on Illinois Counties," U.S. Travel Data Center, 1992.

B. Cambridge Systematics' estimates based on available data from the Chicago Office of Tourism, the Chicago Convention and Visitors Bureau, and the Illinois Bureau of Tourism.

Chicago's attractions and museums draw visitors from around the world. The CTA is used by 13 percent of all museum visitors. For the Art Institute alone, this proportion is 18 percent. This difference is due to the accessibility of the Art Institute to the downtown Loop, subways and buses. Of the 13 percent of museum visitors using the CTA, 49 percent are Chicagoans, 29 percent are suburbanites and 22 percent are visitors to the Chicago area. Of the estimated 4,000,000 visitors a year to Lincoln Park Zoo, 25 percent use the CTA.

2.4 RTA's Role in Supporting Regional Economic Growth

As indicated in the previous section, it is clear that RTA plays an important role in supporting regional business and other economic and social activities. The future growth of regional business is correspondingly dependent on RTA services.

Those interviewed point out the importance of the RTA in making the region an attractive place to do business. As mentioned earlier, RTA plays an important role in providing access to labor, which is a key factor businesses look for in selecting a business site. For example, a Lake County spokesperson felt business would expand in Lake County and cluster near public transportation nodes, and that RTA access is crucial to the development of industrial parks in his area. The extent to which it becomes more or less difficult for businesses to get workers, businesses may be influenced to move into or outside of the region to locations where labor is readily accessible. The regional accessibility provided by the RTA system, not only downtown but throughout the suburbs, is one of the Chicago metropolitan area's key strengths. Chicago area businesses have access to labor, each other and the airport.

Providing incentives to workers to use public transportation is an important benefit discussed by the Chicago Federation of Labor in contract negotiations. A spokeswoman for a corporation headquartered in downtown Chicago stated that 80 percent of their full-time employees use public transit. She felt that a downturn of public transit availability would slow down office productivity and the company would be forced to offer an extensive flex-time program in order to keep workers. Another downtown business estimated that approximately 95 percent of their 750 full-time employees use public transit to get to their Loop jobs. Access to the Loop by public transportation was an unquestionable necessity to this business.

Increased traffic congestion which would result from the reduction of RTA services would make it more difficult for businesses to send and receive deliveries in a timely and cost-effective manner. Manufacturers and services which make deliveries within the region would experience rising costs, as well as problems in making time-sensitive deliveries. Crowded driving conditions would also make it more difficult and expensive for workers who currently do not use public transportation. Drivers, bicyclists and walkers could expect slower travel times, increased pollution, accidents and aggravation. In addition, the federal Clean Air Act amendments, which limit the use of private automobiles for work-related trips, would be impossible to implement under these conditions. On the other

hand, improvements to RTA services would improve travel times and shipping costs, and assist in compliance to the Clean Air Act.

The RTA system is also important to the growth of tourism in the Chicago metropolitan region. The future of expanded McCormick Place and redeveloped Navy Pier relies heavily on public transit access to downtown, the rest of the city, the airports, and the region. Further, the direct transit link to both Chicago airports is very important in supporting visitors' access to the city center. Chicago has historically been the country's transportation hub. The new O'Hare International Air Terminal and the new United Airlines terminal at O'Hare have served to strengthen Chicago's transportation hub position, as well as its reputation as a "world class" city. Chicago, like Paris, London, New York, and Washington, D.C. are all "world class" cities which have invested substantially in public transit systems, and are considered important business centers. Also, the direct link of the public transport system to the airport has become a critical component of a "world class" airport. As business becomes more global in nature, competition among "world class" cities increases. Changes in the services offered by a comprehensive public transit system could either strengthen or weaken Chicago's "world class" status.

The proposed downtown Circulator will improve the existing transit connection between the convention facilities and the retail, cultural and hotel markets in Chicago's Central Area. This improved connection is anticipated to assist in increasing the number of conventions that come to Chicago, which in turn will increase retail sales and hotel occupancies.

In addition to public transportation, future business moves will be based on many other factors. Other factors affecting business locations include reorganizations, technological innovations and market changes such as increased global business activity. The metropolitan regions that will benefit from these business moves are those which offer the most attractive environment for businesses. All businesses will need available quality labor and competitive operating and labor costs. Office businesses will find adequate telecommunications infrastructure and air access more and more critical. Manufacturing firms will be increasingly concerned with labor productivity, infrastructure and transportation access into and out of a region. Advanced computer networks and telecommunications allow clerical and records processing activities to relocate to an ever growing degree. Maintaining a quality accessible labor force will be crucial to whether or not businesses remain in a region.

Many programs have been developed by public and private entities to promote the economic growth of the Chicago metropolitan area. The effectiveness of economic development efforts will be tied in part to the Chicago area's reputation as a region which provides good business access to labor and convenient, reasonably priced transportation to residents and visitors.

2.5 Transit Dependent Populations

An important aspect of public transportation is the mobility it provides to a segment of the population which has no other access to employment, recreation, medical care, education and other activities. For that segment of the population, transit provides both a social and an economic link.

As Table 2.8 shows, 17 percent of households in the metropolitan area do not have automobiles available to them. There are several groups which are more highly dependent on transit availability than others, because they cannot use an alternative to transit for one reason or another. These groups include the disabled, the elderly, low-income residents, and students.

The characteristics of these groups are described below.

2.5.1 Disabled

As Table 2.9 shows, 9.5 percent of the non-institutionalized population, or 522,000 people, has some form of work disability. Four percent (219,000) of the population, or slightly less than half of those with a work disability, have a mobility or self-care limitation. An additional 175,000 have a mobility or self-care limitation, but do not have a work disability.

Not all persons with disabilities have a transportation disability. In a study conducted for RTA on persons with disabilities, it was estimated that between four to five percent of the population in the CTA service area have disabilities which affect their ability to use transit. Within the population of those with transportation disabilities are segments which are severely mobility limited, or can seldom or never use transit. Of those with disabilities, 36 percent can never use transit, and 14 percent can seldom use it.

CTA has a division called Special Services, which provides paratransit services for people whose disabilities prevent them from using public transit. These are 22,000 certified individuals in the CTA service area who live within 3/4 mile of a fixed route service. The daily reservation limit for these services is 3,825. The services are operated by private carriers. In 1993, there were a total of 1,147,027 trips made on paratransit.

Persons with transportation disabilities use transit or paratransit for a variety of purposes. As Table 2.10 shows, based on the above-referenced survey, 36 percent of persons with transportation disabilities are home trips. Approximately 19 percent are shopping trips, while five percent of trips are for work. Medical trips are also important, comprising seven percent of trips.

The survey also investigated the modes of transportation which were available to persons with transportation disabilities. Auto is the most prevalent mode, followed by bus and taxi, as shown in Table 2.11.

Table 2.8 Automobile Availability in Chicago Metropolitan Area[1]

Number of Vehicles	Households with Vehicles	
	Number	Percent
None	453,718	17.3%
1	934,299	35.7
2	896,298	34.2
3	246,477	9.4
4	67,198	2.6
5 or more	21,857	.8

[1] Of those households living in occupied housing units.

Source: 1990 U.S. Census.

Table 2.9 Work Disability and Mobility Status in Chicago Metropolitan Area

Disability Characteristics	Total[1]	% of Total
With Work Disability	**552,029**	**9.5%**
In labor force		
Employed	110,344	2.0
Unemployed	18,275	.3
Not in labor force		
Prevented from working	338,046	6.2
Not prevented from working	55,364	1.0
With mobility or self-care limitation	218,638	4.0
Without mobility or self-care limitation	303,391	5.5
Without Work Disability	**4,963,294**	**90.5**
With mobility or self-care limitation	175,487	3.2
Without mobility or self-care limitation	4,787,807	87.3
Mobility		
With mobility limitation only	117,123	2.1
With self-care limitation only	170,579	3.1
Mobility and self-care limitation	106,423	1.9
No mobility and self-care limitation	5,091,198	92.8

[1] Non-institutionalized persons 16+ years old.

Source: 1990 U.S. Census.

Table 2.10 Trip Purpose for Persons with Transportation Disabilities

Trip Purpose	Percent
Home	36%
Medical	7
Work	5
School	1
Shopping	19.5
Social/Recreational	11
Religious	1
Personal	10
Other	9.5

Source: "Results of a Baseline Survey of Persons with Transportation Disabilities," prepared for RTA, April 1992.

Table 2.11 Transportation Modes Available to Persons with Transportation Disabilities

Modes Reported Available	Percent Reporting Mode as Available
Auto	72%
Bus	51
Taxi	38
Train	27
Special Services	19
Medical Cars	11
Social Services	8
No Access	3
Other	1

Source: "Results of a Baseline Survey of Persons with Transportation Disabilities," prepared for RTA, April 1992.

The importance of public transportation access for the disabled has been heightened by the Americans with Disabilities Act, passed in 1991. The transportation provisions of the ADA contain requirements for acquisition of accessible vehicles by public and private entities, requirements for complementary paratransit served by public entities operating a fixed route system, and provision of non-discriminatory accessible transportation service. The requirements apply to all public agencies, such as RTA , which provide transit service. Many of the requirements regarding compliance with accessibility standards for existing equipment will still have to be met, even under a scenario such as Disinvestment, which greatly reduces the funding for any sort of capital improvements.

2.5.2 Elderly

The elderly constitute another group for whom public transit plays a key role for mobility. Over 11 percent of the metropolitan area's population is over 65, with five percent over 75, as shown in Table 2.12. Of those between the ages of 65 and 74, nine percent have some form of mobility limitation, while 27 percent of those over 75 have such a limitation. Regular RTA services provide an important form of transportation for those who are able to use it. There also is a group of elderly who cannot use regular services, and use CTA special services or private carrier services. For example, the Council of Jewish Elderly has 600 clients registered for their transportation services, providing approximately 70,000 client trips per year. The majority of trip destinations for this segment of the population are for shopping, health care and recreation. Approximately 14 percent of those over 65 are employed.

2.5.3 Low Income

The low-income community tends to rely more heavily on RTA services than the population at large for access to both economic and social activities. As Table 2.13 shows, 27 percent of CTA riders have no car in the household, compared to six percent of non-riders. Riders of CTA have relatively lower income – 39 percent have household incomes $20,000 or less, with 16 percent having incomes under $10,000. For non-riders, in the CTA service area, 11 percent have incomes under $10,000, with 31 percent having incomes under $20,000.

2.5.4 School Populations

Elementary and secondary students in Chicago rely heavily on RTA services (particularly CTA) to get to and from school, work, student activities and job training. The Chicago public schools have approximately 430,000 students. In the City of Chicago, there are an additional 118,000 students attending private school. (See Table 2.14.)

Students at the region's colleges and universities also rely on RTA services to get to classes, to work, and for recreation. In the metropolitan area, there are around 523,000 students

Table 2.12 Age Composition of Population of Chicago Metropolitan Area

A. Age of Population

Age	Percent of Population	Total
0-4	7.7%	558,809
5-17	18.2	1,325,250
18-24	10.2	741,975
25-44	33.8	2,457,261
45-64	18.7	1,357,962
65-74	6.7	487,064
75 +	4.6	332,855

B. Mobility and Self-care Limitation Status

	Age Group	
	65-74	75 +
Mobility limitation only	5.3%	14.0%
Self-care limitation only	4.6	5.3
Mobility and self-care limitation	4.1	12.8
No mobility or self-care limitation	86.0	68.0

C. Labor Force Status

	Age 65 +
In Labor Force	
Employed	14.0%
Unemployed	.8
Not in Labor Force	85.2

Source: 1990 Census of Population and Housing.

Table 2.13 Income Profile of Transit Riders and Non-Riders in Chicago

	Riders	Non-riders
Number of Cars/Vans/ Trucks in Household		
None	27%	6%
One	36	42
Two	21	32
Three or more	11	19
Income		
Under $10,000	16%	11%
10-15,000	12	11
15-20,000	11	9
20-25,000	13	15
25-30,000	13	11
30-40,000	14	14
40-50,000	10	15
50,000+	12	14

Source: "Household Survey of the CTA Service Area," 1989.

Table 2.14 School Enrollment in the Chicago Metropolitan Area[1]

	City of Chicago	Metro Area
Primary School		
Public	27,249	87,800
Private	17,333	64,764
Elementary/High School		
Public	391,046	1,029,995
Private	101,138	205,538
College		
Public	125,797	336,647
Private	81,630	186,648
Not Enrolled	1,908,276	5,010,566
Total	**2,652,469**	**6,921,958**

1 Of population three years and older.

Source: 1990 U.S. Census.

enrolled in college, according to the 1990 census. Students at many of these institutions commute to school, and between campuses and satellite locations. Many of these schools provide limited or no housing for students.

2.6 Congestion and Air Quality

Understanding the importance of long-term investment in public transportation is not only a matter of economic activity. The current state of congestion in Chicago and many other major cities, as well as the accompanying air quality problems, are critical problems for the future of the city. The Clean Air Act Amendment of 1990 provided new standards by which reduction in National Ambient Air Quality Standards should be met, and timetables were established for attaining these standards, which specify the concentration of pollutants in the outdoor air that are considered safe. The Clean Air Act has designated a number of areas as being in non-attainment of the ozone National Ambient Air Quality Standard. Ozone non-attainment areas are classified as extreme, severe, serious, moderate and marginal. There are nine "severe" non-attainment areas, of which Chicago is one. The severe non-attainment classification means that the Chicago region has 15 years to reach attainment of the primary standard for ozone. After November 1990, the region will have to reduce hydrocarbon emissions by 15 percent, and then approximately three percent each year thereafter.

Therefore, reduction of air pollution in cities like Chicago is not an option, but a requirement. Chicago has serious problems in that it is a non-attainment zone. Therefore, solutions to improving air quality and reducing automobile usage are critical for the long-term public and economic health of the city. As Table 2.15 shows, Chicago ranks fourth, along with Miami, as being the most congested cities in the U.S. Only Los Angeles, San Francisco and Washington, D.C. have a higher congestion index. The annual costs due to congestion in Chicago were estimated to be $2.360 billion in 1991. This is not surprising in light of the fact that average annual vehicle miles traveled increased almost six percent from 1987 to 1991, the highest annualized percentage increase of the top 30 congested cities.

These congested conditions are reflected in the air quality statistics in the region. The EPA measures air quality using the Pollutant Standards Index (PSI). If the PSI is over 100, then the air quality is judged to be unhealthful to hazardous. The PSI includes PM-10, SO_2, CO O_3 and NO_2. In 1992, there were eight days in Chicago when the PSI was over 100, down from 15 days in 1991.

The Clean Air Act has implications for drivers in the Chicago metro area. Under the law, the Chicago area, by 1998, must reduce the number of cars traveling to work by 20 percent. To try to comply with this requirement, as of July 15, 1994, employers with more than 100 workers at a single site were required to help them find alternative methods of getting to work. The Employee Commute Options program is currently in legal debate, but still raises the issue of the critical need to reduce automobile use in Chicago in the coming year.

Table 2.15 Urban Roadway Congestion Statistics

City	Congestion Index[1]	Average Annual VMT Growth 1987 to 1991	Annual Cost Due to Congestion (Millions)
Los Angeles	1.56	3.00	$7,790
Washington, DC	1.39	2.40	2,430
San Francisco	1.34	1.78	2,830
Chicago	1.28	5.61	2,360
Miami	1.28	4.98	950
San Diego	1.22	4.42	690
Seattle	1.20	3.06	1,190
San Bernadino, CA	1.20	4.20	1,070
Atlanta	1.14	1.93	1,010
New York	1.14	2.75	6,620
Houston	1.11	2.71	1,750
Detroit	1.10	2.53	1,610
San Jose, CA	1.07	2.66	1,010
Boston	1.06	.24	1,520
Sacramento	1.04	4.07	350

[1] Combines actual daily vehicle miles of travel with calculated values associated with congestion conditions.

Source: Texas Transportation Institute, 1994.

The RTA is also committed to help in the air pollution reduction program, by implementing a series of new and expanded public transit service projects as part of a set of transportation control measures in order to comply with Clean Air Act requirements. These responsibilities will remain, and have implications if the level of funding is reduced under the Disinvestment scenario.

3.0 Analysis Process

3.0 Analysis Process

3.1 Overview of Analysis Process

The analysis process involves a series of steps, which are outlined below and summarized in Figure 3.1. These steps are:

1. **Define Transportation System Changes** – The future scenarios for investment in RTA are defined in terms of changes in transportation supply (capacity) and level-of-service (travel time) for public transit, car and truck travel, for each year over the period 1995 to 2014. These changes are the result of changes in costs and ridership associated with the scenarios.

2. **Transportation Model** – A computer model of regional transportation impacts is applied to estimate the impacts of transportation system changes on travellers, in terms of changes in operating costs, travel time costs, safety costs, and out-of-pocket costs and travel times incurred. These are estimated separately by mode of travel (public transit, car and truck), for each year over the period 1995 to 2014.

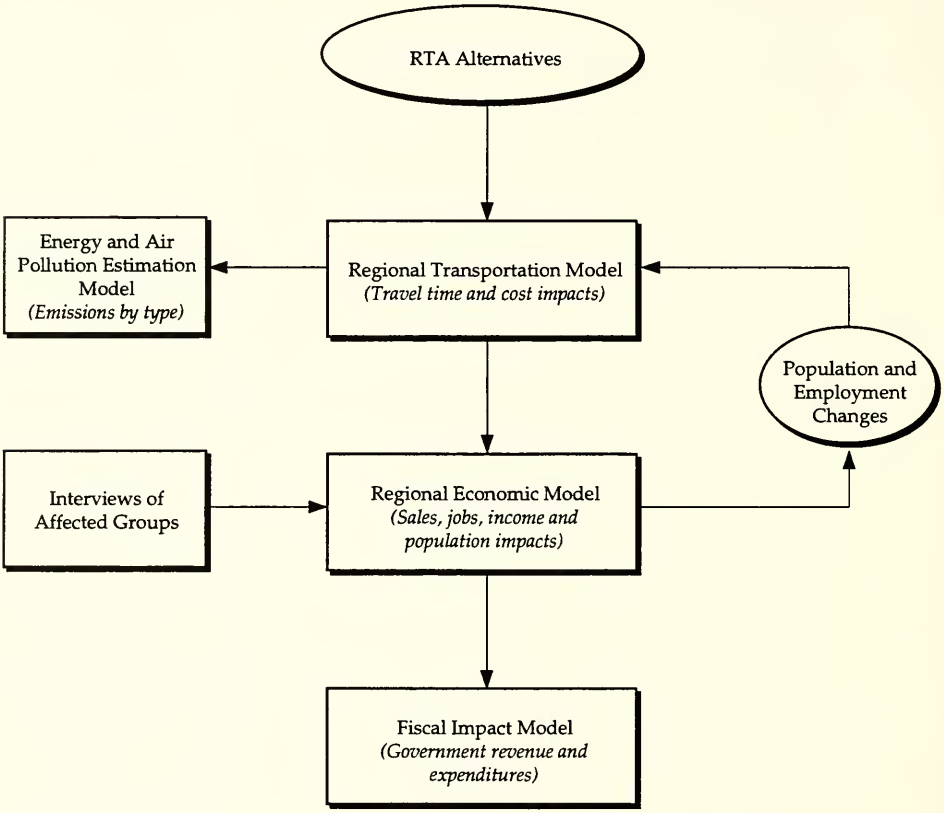
3. **Economic Model** – Economic simulation models for the Chicago metropolitan region and the rest of the State of Illinois are applied to estimate the impacts of travel cost and time changes on the economy, in terms of business sales, employment, income and population. These impacts are estimated for each type of business and occupation group, for each year over the period 1995 to 2014.

4. **Fiscal Model** – A fiscal model for the Chicago region's local governments is applied to estimate the impacts of business sales, employment, income and population changes on government revenues and expenditures. These impacts are estimated in terms of net revenue changes for each year over the period 1995 to 2014.

5. **Energy and Air Pollution Estimation** – Energy and Emissions models are applied to estimate the impacts of changes in vehicle-miles of travel by public transit, car and truck on consumption of gasoline and emissions of air pollutants. These impacts are estimated for each year over the period 1995 to 2014.

6. **Interviews** – Findings from interviews with businesses, economic development professionals and representatives of elderly, handicapped, low income and minority groups are used to supplement the economic model analysis (Step 3, above), and to better distinguish the differential impacts on particular groups in the population.

Figure 3.1 Analysis Process for RTA Economic Impacts Study



3.2 Data Collection

A wide variety of data sources were used to provide information for this study. They include:

- **Travel and Transportation Cost Data** – including RTA ridership and passenger miles of travel by line; RTA operating costs and capital programs; fare structures; data on conditions of equipment and facilities; long-range plans; highway volumes and capacities, including peak-hour and ADT volumes; traffic signal information, speed information and accident rates; parking facilities, costs, usage; gasoline consumption and air quality data; and private sector mass transit services. These data were provided by RTA, CTA, Metra, Pace, CATS, and Illinois DOT.

- **Economic and Demographic Data** – including existing and projected population and employment figures; labor force characteristics; special needs population characteristics; tourism statistics; commute-to-work patterns; economic development programs and activities; business location information; development trends; government expenditures and revenues, tax rates and other local and regional fiscal information. These data were provided by the Northeastern Illinois Planning Council, Federal Reserve Bank of Chicago, and the Bureau of Economic Analysis.

In addition to the above data collection, the consultant team conducted interviews with various affected public agencies, business interests, and other affected groups to identify local and regional concerns and expectations regarding relationships of RTA services and economic activity in the area. The purpose of this was to help supplement the economic model analysis and to better distinguish the differential impacts on particular groups in the population. The three sectors interviewed were:

- **Economic Development and Planning Agencies** – at the regional and local level. These included economic development and planning departments in the City and throughout the Metropolitan area (i.e., the City of Chicago Department of Planning and Development, the Economic Development Corporation of Chicago, Northeastern Illinois Planning Commission, Metropolitan Planning Council, Illinois Department of Commerce and Community Affairs, local city representatives), chambers of commerce (state and city), tourism agencies (i.e., State of Illinois Bureau of Tourism, and the Chicago Convention and Tourism Bureau) and local attractions.

- **Businesses** – selected businesses throughout the region, both downtown and in the suburbs, representing a wide cross section of economic activity. These included manufacturing, wholesale/distribution, transportation, retail, hotel/tourism, professional services, business services, banking/finance/real estate, and government.

- **Special Needs Populations** – agencies and advocacy groups representing transit dependent groups such as the elderly, poor, handicapped, and students.

3.3 Transportation Model: Direct User Impacts

3.3.1 Background of Model

As discussed in Section 1.2, the first step in the analysis process for analyzing the economic impacts of the RTA system is to estimate the impacts of RTA on transportation system users. The public transportation system in the Chicago area is part of a large transportation network which functions together. Making changes in the level of public transportation services offered affects the levels of service and costs experienced by highway users as well. The investment scenarios defined in Section 2.0 include changes in RTA ridership based on differing levels of capital and operating costs. The direct user impacts of these changes are defined as:

- Increased or decreased travel by car, at greater or less cost, for former RTA users; and
- More or less traffic congestion, bringing longer or shorter travel times and greater or lower out-of-pocket operating costs for existing car and truck users.

RTA riders experience a certain level of travel cost associated with their trips on the transit system. These are their travel time costs, the fares paid, and the costs of comfort and convenience due to service quality. There are also car and truck drivers who use the roadways, who experience costs at a level relative to the nature of congestion, time delay and other factors. Changes in the number of people riding RTA affects those on the roadways who are not themselves using RTA, but who do use the highway network, by impacting on travel time and operating costs.

The impacts on both RTA users and users of the rest of the transportation network will differ depending on a number of factors. If RTA services were reduced (as they would be under the Disinvestment Scenario), then those trips made by RTA riders would have to be made by other means. It is estimated that a large portion of these trips would be made by switching to car travel. Some RTA users already have access to a car; others do not currently have a car but would purchase one. This would entail additional costs of car ownership and operating costs, as well as insurance and parking costs, which may outweigh the transit fares formerly paid by those RTA riders. Other RTA riders would be unable to afford a car, and would have to carpool, with more inconvenience than today. A small fraction of RTA users would be able to find alternative means of transportation, including rides from friends, social service agencies, or other private transportation services. It might also be expected that a small number of both work trip and non-work trips would no longer occur. For those remaining on RTA, users would experience increasingly crowded vehicles, with slower travel times and less frequent service.

Under this scenario, there would also be impacts on existing car and truck users. As more RTA riders switch to car travel for their trips previously taken on RTA, the overall level of traffic congestion will increase, and existing auto and truck users will experience increased travel times and increased operating costs as a result of sharing the road with a greater number of vehicles.

If RTA services were increased, as they would be to differing extents under the State of Good Repair and System Expansion scenarios, there would be benefits to current RTA users, new RTA users and auto and truck drivers. Those using RTA services would experience an improvement in travel times, and reductions in various costs, particularly for those who reduce their auto travel and switch to public transportation. Existing RTA riders would experience increased travel speeds and more frequent service, and an increase in convenience. Auto and truck users would experience a relative reduction in congestion, reducing both travel times and operating costs.

3.3.2 Description of Model

To estimate the nature of these changes, a computerized transportation impact model has been developed by Cambridge Systematics, and applied for this study. The transportation model includes estimates of costs for both RTA users and highway users. The model assumes that the changes in ridership defined in the investment scenarios are added to or removed from the highway network, affecting costs for both RTA users and highway users.

- **Transit User Costs** include both travel times and walk-and-wait times.

  - In-vehicle travel time was valued at $7.56 per hour. This was calculated using a base figure of $12.26 per hour (average Chicago hourly wage), which was applied to on-the-clock, to/from work, and non-work related trips, to estimate the value that people attach to these types of trips. The values for travel times are all based upon those utilized in the Federal Highway Administration's Highway Economic Requirements System (HERS). The adjustment of 60 percent is based upon research on the value of travel times as a proportion of wage rates. These values were then multiplied by the passenger miles traveled for each trip purpose based on Chicago-area travel patterns.

  - Walk-and-wait times were valued at $9.32 per hour indicating that people place more value on reduced walk-or-wait times. In some travel models, walk-and-wait times are 2 to 4 times the value of in-vehicle times.

- **Highway Costs**

  - Traffic changes would occur on the roadway network depending on the changes in RTA ridership. Based on this, estimated congestion levels, speeds and auto and truck costs were then calculated. These calculations included travel time and delay costs and operating costs.

  - Automobile and light trucks' costs were estimated using the auto occupancy rate for each trip type, the share of total travel that the trip comprises, and the dollar value assigned to that specific trip type. The value of time is calculated at $10.49 per vehicle hour. This represents an average for all trip types.

- Heavy trucks' costs were estimated using values from the HERS Model (The Highway Economic Requirements System Task D Report: Documentation of Model Structure, Federal Highway Administration, January 1990.), updated to 1994. The value of time is calculated as $29.38 per vehicle hour.

- **Parking Costs** for downtown Chicago were estimated to average $10 per new auto trip to downtown, based on a recent survey of downtown parking facilities, entitled The 1991 Downtown Chicago Parking Survey, adjusted to reflect 1994 parking costs. No parking changes were assumed for new auto trips not to the downtown (two-thirds of new auto trips).

- **Automobile Ownership Costs** were calculated based on the proportion of persons switching to auto usage who would have to buy cars, estimated at 20 percent, based on auto ownership data of riders and non-riders.

Adding together the various facets of direct user benefits, the model provides estimates of total regional changes in expenditures on public transit, car ownership costs, car operating costs, safety costs and travel times.

3.4 Economic Model: Overall Regional Impacts

3.4.1 Background of Model

The regional economic impacts of reducing or improving RTA services occur as a result of several factors:

- Change in "cost of doing business" in the region, resulting from the longer or shorter time cost and out-of-pocket cost of business delivery, shipping and "on-the-clock" individual business travel on congested roads;

- Change in "cost of living" in the region, resulting from the greater or out-of-pocket cost of personal travel on congested roads, and additional changes in cost of car ownership and usage by some RTA users;

- Change in jobs for RTA employees;

- Change in "attractiveness" or quality of life, resulting from the greater or reduced travel times of personal travel on congested roads, and reduced or improved options for non-car travel;

- Shifts in personal spending patterns, with changes in purchases of cars, petroleum products, insurance, parking and repair services in place of transit fares and other expenditures; and

- Change in business access to labor markets;
- Change in attraction of visitors.

These "direct" regional economic impacts will reduce or increase business sales and jobs to some extent depending on the level and nature of transportation changes. To the extent that such direct impacts occur, they will also lead to additional "indirect" impacts on the regional economy, as business orders to suppliers are changed, causing additional gains or losses of business sales and jobs. They will also lead to further "induced" impacts, as there are changes in consumer purchasing due to fewer or more workers and less or more disposable income remaining.

The rest of the State of Illinois will also be affected. On the one hand, the rest of the state could gain or lose some of the business activity that moves in or out of the Chicago region. On the other hand, a significant share of business activity in the rest of the state depends on business customers and suppliers in the Chicago area. Therefore, the rest of the state will stand to lose or gain some business activity if the economy of the Chicago region is significantly affected.

3.4.2 Description of the Computerized Economic Model

The magnitude of economic impacts described above were estimated using a regional economic simulation model. The REMI forecasting and simulation model, developed by Regional Economic Models, Inc., was specifically calibrated for two regions: 1) the six-county Chicago metropolitan area; and 2) the State of Illinois excluding the Chicago area.

The REMI model system is a nationally-renowned economic simulation and forecasting system specifically designed for policy analysis. Developed by Dr. George Treyz of the University of Massachusetts-Amherst, it is a highly sophisticated computer model system, the result of over ten years of development. It has been documented and reviewed in a variety of professional journals. Key aspects of the REMI simulation are its sensitivity to factors such as population migration, effects of business operating costs on the location of industry, detailed changes in wages by occupation, business mix shifts, technological changes and inter-industry trade flows.

The REMI Forecasting and Simulation Model includes all of the inter-industry interactions among 49 private sectors in the economy. It also includes the trading flows by industry between the Chicago metropolitan area and the rest of the State of Illinois.

In addition to containing a complete inter-industry and trade flow structure, the model also includes key aspects of the economy that are regarded as important for policy evaluation. These include the effect on the location of industry, in the present and future, of changes in the relative cost of doing business. This relative cost of doing business is built up for each industry based on tax costs, fuel costs, wage costs, and costs of all the intermediate inputs in the area. The model allows for substitution among capital, labor and fuel, based on shifts

in relative cost in these factor inputs. It has a wage determination response for each of 94 occupations based on shifts in relative demand for labor in each occupational category. These wage changes, by occupation, affect costs for each industry. The model includes a migration response to employment conditions in the area.

The model is calibrated specifically to the study areas. This calibration starts with the detailed analysis of the economy at the level of 500 separate industries. At that level, the proportion of local use supplied locally for each industry is estimated using results from quantitative work done across all states and state specific adjustments derived from direct observation in the Census of Transportation.

The model makes a forecast for over 2000 variables (including Gross Regional Product by final demand sectors and by industries and employment and cost of doing business for 53 industries) with a complete history of forecast for all of these variables from 1969 through 2035. Using any of over 700 policy variables it is possible to introduce changes that the region may experience due to policy initiatives.

Overall impacts on the State of Illinois are estimated by adding together impacts on the Chicago metropolitan area and impacts on the rest of the state.

The modeling and analysis process is dynamic: transportation cost impacts and overall economic impacts for each scenario are modelled year-by-year. The transportation model estimates transportation related costs for each year. These are used in the economic model to estimate changes in economic activity over the year. This analysis process is carried on through the year 2014 in order to estimate long-term changes.

3.5 Fiscal Impact Model

3.5.1 Background of Model

The next step in the analysis process is to estimate the impacts of the changes on government revenues and expenditures in the Chicago Metropolitan area. Cambridge Systematics developed the fiscal impact model for the Chicago metropolitan area to determine changes in government revenues and expenditures based on changes in population and employment which result from the economic impact analysis conducted using the REMI model for the three investment scenarios. The Chicago metropolitan area is characterized by a highly decentralized government. This required developing a model which can analyze revenues and expenditures in the metropolitan area at the following levels:

- Municipal districts;
- County districts;
- Township districts;
- School districts;
- Community college districts; and
- Special districts.

Between the municipal, county and school districts (elementary, unit and high school), as well as the multitude of special districts (i.e. fire protection districts, library districts, hospital districts, park and forest preserve districts, sanitary districts, mosquito abatement districts, and more), government services in the Chicago metropolitan area are operated through more than 1,200 tax districts. The districts in the region create a complex and intricate fiscal structure whose future is difficult to predict with certainty. Current fluctuations in federal and state funding sources also contribute to the uncertainty. Within this context, the fiscal model analyzed impacts at a relatively aggregate level to identify "macro" trends for the Chicago region due to changes in the RTA system.

The premise for the fiscal model is that shifts in population and employment have impacts on government revenues and expenditures. The model assumes that government revenue and expenditure patterns will change in a manner that is proportional to changes in population and employment. Using the most recent data available from the Civic Federation in Chicago, revenues and expenditures were tabulated by major category. Per capita revenues and expenditures were calculated at a county level for the major district levels, including county, municipal, township, and special district. School and community college districts were calculated on a per student basis.

3.5.2 Description of Model

The fiscal data for the model was provided from a regional database developed by the Civic Federation in Chicago, the most comprehensive set of data available. Over the period of 1984 to 1990, the Civic Federation collected data by government district and by category of revenue and expenditure as a means of analyzing fiscal policy and trends. 1990 is the most current year available at the level of detail required for assembly of the fiscal compact model. This data was collected with assistance from the Illinois State Comptroller, the Department of Revenue, the Illinois Community College Board, and the State Board of Education. For the fiscal impact model, 1990 data as adjusted to reflect constant 1994 dollars. Sources of revenues and expenditures used on the model include the following:

- **Revenues**

  - Federal: Federal revenue sharing
    Federal educational assistance

  - State: Sales tax
    Income tax
    Motor fuel tax
    State educational assistance
    Other intergovernmental transfers

  - Local: Property tax (real and personal)
    Sales tax
    Other local taxes
    Local fees (permits, fees, fines, user charges)

  Per capita revenue multipliers are used to determine how a change in population and employment affects funding at all levels. Change in revenue will occur, for instance, when lower population levels cause redistribution of fewer federal and state income tax funds to a region. At the same time, with a lower disposable income base, lower sales volume for goods will result in lower sales tax income. Property tax revenues will be affected by new commercial or residential development or an adjustment in assessed values.

- **Expenditures**
  - General government
  - Public safety
  - Corrections/judiciary
  - Public works/transportation
  - Health and welfare
  - Culture/recreation
  - Debt service
  - Education

Changes in expenditures occur when, for example, a shrinking population requires lower costs in school operations, general administration, public safety, and culture/recreation. It is important to note that lower costs may be counteracted to a degree if urban social problems accompany a shrinking population and require higher public welfare spending.

The method for predicting changes in government expenditures is the Comparable City Fiscal Impact Analysis Method developed by The Center for Urban Policy Research. This technique assumes that changes occurring in Chicago region will follow similar patterns to other municipalities of similar size. It uses per capita multipliers to calculate changes in spending in major categories. Multipliers for this purpose were developed by The Center

for Urban Policy and Research at Rutgers University and discussed in "The Practitioner's Guide to Fiscal Impact Analysis," published by that organization. Multipliers vary according to the size of the community and the growth rate.

This method takes into account the fact that some categories of expenditures may be affected more than others. In other words, some government costs are fixed and do not change according to population and employment levels. Fixed costs may include infrastructure, administration, or maintenance spending such as highway repair or park maintenance. The model takes these variables into account using multipliers which multiply per capita revenue and expenditures by a certain factor generally between zero and three (one being no adjustment). If the factor is less than one, a funding category is less affected by population and employment change. If a factor is more than one, the impact is significant.

Once the multipliers are established, the three RTA scenarios (Disinvestment, State of Good Repair, and System Expansion) were analyzed using per capita revenues and expenditures. The incremental change in population for each scenario was applied to the multipliers, and the total change in revenues and expenditures is calculated. These changes were calculated at a regional level for county, municipal, township, special, school and community college districts. Changes are then summarized for the metropolitan area.

4.0 Transportation Impacts

4.0 Transportation Impacts

4.1 Direct Cost Impacts

As the previous chapter describes, the transportation model takes the system changes defined in the alternative investment scenarios, and estimates the impacts of these RTA system changes on the transportation network. The impacts on the transportation network are calculated in terms of changes in transportation costs to users. Table 4.1 summarizes the average annual changes (either increases or decreases in costs) of the three scenarios relative to the base case, which is the Baseline/Determination scenario. The following highlights key results from that table. Table 4.2 provides additional detail for selected years of the analysis projections.

4.1.1 Disinvestment Scenario

As the table shows, under this scenario of reducing funding to a minimum level, there would be a reduction in average annual capital and operating costs of a total of $199.6 million. However, this reduction in costs, or cost savings will be more than outweighed by the increased costs to RTA users and highway users. RTA users will experience an average annual cost increase of $390.9 million. Highway users will also share in the burden of RTA service reduction, with an average annual increase of $148.6 million for automobile users, and $19.6 million for heavy trucks. The net change in transportation costs under this scenario is an increase of $359.6 million.

This scenario will result in an average annual increase in fuel consumption of 16.9 million gallons, with an increase in parking cost of $135.2 million. Average annual auto ownership costs would increase by $15.5 million.

4.1.2 Good Repair

This scenario, which calls for investment to a level sufficient to bring the system to a state of good repair, will require, on average, annual capital and operating expenditures of $164.7 million. RTA users will experience annual transportation cost savings of $318.7 million. Auto users will save on average $157.3 million, and truck users will have savings of $20.8 million per year. The net impact is $332.2 million in cost savings per year.

This scenario would result in an average annual decrease in fuel consumption of 17.9 million gallons, and a decrease in parking costs of $143 million. Auto ownership costs would decrease an average of $16.4 million annually.

Table 4.1 Changes in Transportation Costs for Future RTA Alternative Scenarios (Average Annual Cost in Millions of 1994 Dollars)

	Disinvestment[1]	State of Good Repair[1]	System Expansion[1]
Total Changes in Transportation Costs			
Effects on RTA Users	$ 390.9	$-318.7	$-848.2
Effects on Highway Users			
- Automobiles/Light Trucks	148.6	-157.3	-235.3
- Heavy Trucks	19.6	-20.8	-31.1
RTA Capital Costs	-37.0	110.2	476.4
RTA Operating Costs	-162.6	54.5	383.9
Total Change	359.6	-332.2	-254.4
Other Effects			
Change in Fuel Use (millions of gallons)	16.9	-17.9	-26.8
Change in Parking Costs	135.2	-143.0	-214.0
Changes in Auto Ownership Costs	15.5	-16.4	-24.5

[1] Changes in costs relative to the Base Case (Baseline/Deterioration scenario).

Negative numbers represent cost savings or reductions.

Source: Cambridge Systematics, Inc.

Table 4.2 Detailed Changes in Transportation Costs for Selected Years (Annual Cost in Millions of 1994 Dollars)

Scenario	Total Changes in Transportation Costs						Other Effects		
	Effects on RTA Users	Effects on Highway Users		RTA Capital Costs	RTA Operating Costs	TOTAL CHANGE	Change in Fuel Use	Change in Parking Costs	Change in Auto Ownership Costs
		Auto	Heavy Truck						
Disinvestment[1]									
1995	66.1	123.1	16.3	-44.8	-95.8	**64.9**	14.0	111.9	6.3
2000	258.7	121.0	16.0	-26.1	-98.3	**271.3**	13.8	110.0	14.0
2014	639.4	181.5	24.0	-41.8	-270.8	**532.3**	20.6	165.0	18.9
State of Good Repair[1]									
1995	-24.9	-58.4	-7.7	141.2	-37.8	**12.4**	-6.6	-53.1	-6.1
2000	-147.4	-169.0	-27.3	104.2	-1.8	**-236.3**	-19.2	-153.6	-17.6
2014	-612.6	-162.7	-21.5	104.6	173.2	**-519.0**	-18.5	-148.0	-17.0
System Expansion[1]									
1995	-145.4	181.5	-24.0	497.2	165.2	**311.6**	-20.6	-165.0	-18.9
2000	-606.9	-219.1	-28.9	412.5	258.2	**-184.6**	-24.9	-199.2	-22.8
2014	-1359.3	-323.4	-42.7	504.8	663.2	**-557.4**	-36.8	-294.0	-33.7

[1] Changes in costs relative to the base case (Baseline/Deterioration scenario).

Negative numbers represent cost savings or reductions.

Source: Cambridge Systematics, Inc.

4.1.3 System Expansion

This scenario, which represents investing in the system to expand it beyond the state of good repair, will require significantly more investment, approximately $860.3 million per year. This level of funding will result in significant transportation cost reductions. Although the average net changes are somewhat lower than that of the good repair scenario, it is important to note that the majority of the benefits of this scenario will be realized in the latter portion of the 20 year period. For example, the benefits to RTA users will include an average cost savings of $848.2 million per year. Annual savings to auto users will be $235.3 million; to truck users, $31.1 million. The average annual net total savings impacts under this scenario are $254.4 million. In comparison, the total net savings impact in year 2011 will be $572.6 million, and $587.9 million in 2012.

This scenario would result in an average annual decrease in fuel consumption of 26.8 million gallons. On average, parking costs are anticipated to decrease $214 million. The average annual decrease in auto ownership cost would be $24.5 million.

4.2 Air Quality Impacts

The transportation model also predicts the impacts of these transportation system changes on air quality. These impacts are particularly important to understand in light of the Clean Air Act requirements. Table 4.3 shows the air quality impacts of the scenarios. Average annual changes in emissions are:

- **Disinvestment**
  - Increase of 836.5 metric tons of NMHC
  - Increase of 5,595.1 metric tons of CO
  - Increase of 311.0 metric tons of NO_x
  - Increase of 13.1 metric tons of PM10

- **Good Repair**
  - Reduction of 876.4 metric tons of NMHC
  - Reduction of 5,872.2 metric tons of CO
  - Reduction of 327.1 metric tons of NO_x
  - Reduction of 14.1 metric tons of PM10

- **System Expansion**
  - Reduction of 1,317.4 metric tons of NMHC
  - Reduction of 8,839.3 metric tons of CO
  - Reduction of 491.0 metric tons of NO_x
  - Reduction of 21.1 metric tons of PM10

Table 4.3 Impacts of RTA Alternative Scenarios of Metropolitan Area Air Pollution

	Change in Emissions[1] (Metric Tons)			
	NMHC	CO	NO_x	PM10
Disinvestment				
1995	883.7	5,466.0	296.6	11.9
2000	734.4	4,666.3	263.8	10.9
2014	912.2	6,560.1	358.5	16.0
Annual Average	836.5	5,595.1	311.0	13.3
Good Repair				
1995	-419.4	-2,594.0	-140.8	-5.7
2000	-1,025.6	-6,516.7	-368.4	-15.3
2014	-817.8	-5,881.5	-321.4	-14.4
Annual Average	-876.4	-5,872.2	-327.1	-14.1
System Expansion				
1995	-1,303.1	-8,060.0	-437.4	-17.6
2000	-1,329.4	-8,447.6	-477.6	-19.8
2014	-1,625.2	-11,687.5	-638.8	-28.6
Annual Average	-1,317.4	-8,839.3	-491.0	-21.1

[1] Relative to the Base Case (Baseline/Deterioration scenario).

Negative numbers represent emission reductions.

Source: Cambridge Systematics, Inc.

As the data show, the Disinvestment scenario has air quality ramifications, causing a significant decrease in air quality, including an increase of 13.3 metric tons of PM10, and 5,595.1 metric tons of carbon monoxide.

The other two scenarios show varying air quality benefits, with larger benefits resulting from the System Expansion scenario.

4.3 Impacts on Transit Dependent Populations

Although users of RTA span all aspects of the regional population, there are some groups which rely more heavily on public transportation for access, because they have no other option to get to jobs, school, health care, shopping, recreation, and other activities. The nature of the Chicago Metropolitan area's transit dependent populations is described in detail in Chapter 2.0. In addition to analysis of these population characteristics and their use of public transportation, interviews were conducted with representatives of these groups to understand how the different scenarios for the future of RTA would impact these groups.

The following summarizes the potential impacts of the scenarios on each of these groups.

4.3.1 Disabled

As detailed in Section 2.5, approximately 400,000 people in the Chicago metropolitan area have some form of mobility or self-care limitation. Within the CTA service area population, it was estimated that between four and five percent of the population has disabilities which affect their ability to use regularly scheduled transit. Of those who have transportation disabilities, 36 percent can never use transit and 14 percent can seldom use transit. This population is the pool of CTA's Special Service registrants. The remaining population of disabled is able to use regularly scheduled service. CTA also found that upon equipping buses with lifts greatly increased usage of regular transit by the disabled population.

Under the Disinvestment scenario, RTA would still be required to provide both regular service and paratransit service to this population as required by the Americans with Disabilities Act, which would become more difficult under the reduction in funding. If overall RTA services were reduced, then special services would be reduced to meet the level of service provided by regular public transportation services. This reduction in service would severely impact the quality of life for disabled persons, as well as their ability to access employment and other opportunities. Five percent of those with transit disabilities use transit to get to work, and reducing these services may result in lost employment opportunities and lost income for this population. It will also reduce the amount of income this population can spend in the economy, as well as increase the possibility that

some portion of this population will no longer be able to live on their own, and have to be institutionalized or other care provided.

Under the State of Good Repair and Expansion Scenarios, it is likely that the increased investment would hasten the full accessibility of mainline services. A percentage of disabled individuals would be transferred from special services to regular service. Those left on special services would only be those people whose conditions would prevent them from ever using public transit. These alternatives would increase the mobility of the disabled population and its access to economic and social opportunities, and would also allow regular service to serve more disabled persons without the need for special services.

4.3.2 Elderly

The elderly population has similar service needs for accessibility. Over 11 percent of the metropolitan area's population is over 65 percent, with five percent over 75. Of those between 65 and 74, nine percent have some form of mobility limitation, while 27 percent over 75 have such a limitation. As with the disabled population, only part of this group can use regular RTA services. A large part is not capable of using these services for physical or mental reasons. Some elderly use private transportation services provided by social service agencies, or other private services such as taxis.

Very few trips made by the elderly are for work, as many in this group are retired. Primarily, the elderly use transit for shopping, health care and recreation.

Under the Disinvestment scenario, the quality of life for the elderly would also be worsened. Currently, much of the regular public transit system is not accessible for a portion of this group, and reducing services would exacerbate this problem. Private social service agencies would have to increase transportation services they offer, which would eventually cost the public more.

Under the State of Good Repair and Expansion Scenarios, the increased accessibility of mainline services would provide better access for the elderly. It would also reduce the need for social service agencies to provide transportation services, which would reduce their operational costs.

4.3.3 Low Income

The low income community relies more heavily on RTA services than the population at large for access to both economic and social activities. Thirty-nine percent of CTA riders have household incomes of $20,000 or less, and 27 percent of CTA riders have no car in the household. RTA plays a critical role in providing access to jobs, as well as shopping, health care, recreation, religious, and other activities. A reduction in services under the Disinvestment scenario would result in a loss of employment and opportunities for employment for a segment of this population, which would impact the larger economy, as well.

Under the State of Good Repair and Expansion Scenarios, these opportunities would expand. One particular issue mentioned in the interviews was the importance of providing transit service out to suburban employers from the inner city. Many transit dependent inner city residents have lost jobs when major employers moved from transit-accessible inner city locations to remote locations in the suburbs, away from transit.

4.3.4 School Populations

RTA currently provides a vital service for Chicago public school students. The population includes 430,000 students and 60,000 employees. CTA provides the primary form of transportation to school, work, student activities and job training.

Under the Disinvestment scenario, the Chicago public school system would be financially hurt. It would not be possible for the Board of Education to provide all of the students with transportation to make up for the reduction in RTA. This would particularly affect high school students. There is also concern that without the current level of service, many of the marginal students currently in the system may drop out of school if transportation became difficult or inconvenient.

The transportation improvements which would result under the other two scenarios would assist in moving students to and from school, as well as increase the possibility of their participation in extra-curricula educational opportunities. Improvements in service could also move students to and from school faster, thereby reducing opportunities for students to engage in unwanted activities, and improve discipline and safety for the student population.

The over half million students at the region's colleges and universities also make heavy use of RTA services, both to reach class, and to shuttle between facilities of their own institutions. Many of the institutions have no housing or limited housing available for students. Even with housing, many students in the region live in off-campus housing, making RTA critical as a mode of access. With the reduction in services resulting from the Disinvestment scenario, it would be more difficult for students to get to class. The Good Repair and System Expansion scenarios could provide better service for students, or allow some students access to educational facilities to which they previously did not have access.

5.0 Economic Impacts

5.0 Economic Impacts

5.1 Competitive Position of the Regional Economy

The direct transportation impacts of reducing or expanding RTA services, described in Chapter 4.0, would result in changes in levels of traffic congestion, travel times and costs for all car travelers and current public transit users. These direct transportation impacts would affect the regional economy through several means. The changes in transportation costs would result in changes in:

- Business costs for shipping and delivery;
- Cost of living;
- "Quality of life";
- RTA jobs;
- Business access to labor markets; and
- Attraction of visitors.

These factors and the potentials for transportation changes to impact them are discussed below. The resulting effect of these factors would be to either reduce or expand business sales, jobs, disposable personal income and population in the Chicago metropolitan area, depending on the scenario. Additional "spin-off" impacts, which would occur throughout the metropolitan area and rest of the State of Illinois, are also discussed and estimated.

Other impacts of reducing or expanding RTA services which have not been accounted for in the economic analysis include: changes in costs of institutionalization for elderly and handicapped persons, possible changes in costs of social services, and possible changes in costs associated with energy conservation and air pollution.

The transportation changes discussed in Chapter 4.0 represent increased costs or savings which are benefits to users of the transportation network, both RTA users themselves, and highway users. These user benefits most directly affect certain aspects of economic activity which are undertaken by those users. These impacts are described below.

5.1.1 Business Shipping Costs

The transportation network changes would impact area businesses primarily through the effects those changes have on truck travel. The changes in congestion levels of roads and highways in the Chicago metropolitan area which would result from the alternative scenarios would bring about changes in time costs and operating costs for businesses that depend on delivery trips and truck shipments. The extent to which any industry sector would be affected by these changes depends on the relative importance of trucking to the costs of that industry.

Table 5.1 shows estimates for the percentage of total business output value which is made up by truck shipping costs, for selected industry sectors. The other factor which affects the extent of trucking cost impacts on the Chicago metropolitan area is the relative local mix of industry sectors, and the relative importance of trucking costs to the local industry mix. Figure 5.1 shows the distribution of total additional transportation costs or savings incurred by key industry sectors in the Chicago region as a result of the three scenarios.

The changes in business shipping costs represent changes in the cost of doing business in the Chicago metro area. These cost changes could positively or negatively affect the relative position of the Chicago region in terms of how its business costs compare to the costs of operating similar businesses elsewhere. For affected business sectors, the REMI economic model estimates changes in regional productivity and profitability by business sector. It then forecasts a change in the business growth rate, within the Chicago region. The overall magnitude of these impacts are discussed in Section 5.2.

5.1.2 Shifts in Personal Spending Patterns and Cost of Living

Changes in transportation costs for users of the network also affect automobile travel, and personal costs. Depending on whether transportation costs increase or decrease, households living in the Chicago region would experience higher or lower costs of living. Under the Disinvestment scenario, for transit users, the higher cost of acquiring and operating a car (including fuel, insurance and parking costs) would far outweigh the former cost of transit fares. For car users, higher fuel costs due to slower, longer work trips and higher parking costs would raise the cost of commuting. Disposable income left over for other discretionary trips would be reduced. On the other hand, under the State of Good Repair and System Expansion scenarios, transit users and car users would experience improved travel times and a reduction in these costs, and more disposable income would be available for discretionary trips and other expenditures.

Direct impacts on metropolitan area personal spending patterns, under the three alternative scenarios, in an average year, would be:

Table 5.1 Shipping and Delivery Cost* as a Percentage of Doing Business for Selected Industry Sectors

	Trucking Cost as a % of Total Product Cost		Trucking Cost as a % of Total Product Cost
(Manufacturing)		**(Non-Manufacturing)**	
Food (20)	1.7	Mining (10-14)	7.0
Tobacco (21)	2.0	Construction (15-17)	2.5
Textiles (22)	2.5	Railroads (40)	1.1
Apparel (23)	0.5	Public Transport. (41)	0.6
Lumber (24)	1.7	Trucking (42)	29.6
Furniture (25)	1.4	Water Transport. (44)	0.7
Paper (26)	4.7	Air Transport. (45)	1.0
Printing (27)	1.0	Other Transport. (46, 47)	0.7
Chemicals (28)	2.0	Communications (48)	0.2
Petroleum Prod. (29)	15.0	Utilities (49)	0.8
Rubber (30)	2.2	Wholesale (50, 51)	3.4
Leather (31)	0.9	Eating & Drinking (58)	1.0
Stone, Clay, Glass (32)	6.1	Other Retail (52-59)	0.6
Primary Metals (33)	1.7	Hotel & Pers. Servs. (70-74)	0.2
Fabricated Metals (34)	1.7	Car & Truck Repair (75)	1.1
Machinery (35)	0.8	Business Services (76)	0.5
Elec. Equip. (36)	0.6	Recreation (78, 79)	0.7
Trans. Equip. (37)	0.8	Medical & Educ. (80-89)	0.4
Instruments (38)	0.7		
Misc. Manuf. (39)	1.4		

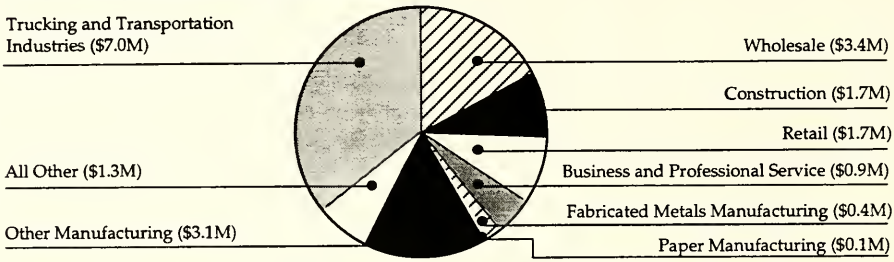
* Defined as cost of trucks, drivers and vehicle operations, including both in-house fleets and purchases of trucking services from other firms.

Source: Cambridge Systematics, Inc., based on inter-industry purchases from input-output model, business expenditure profiles and state industry-occupation tables.

Figure 5.1 Direct Impact of Alternative Scenarios on Additional Truck Shipping Costs, for Key Industry Sectors, within the Chicago Region

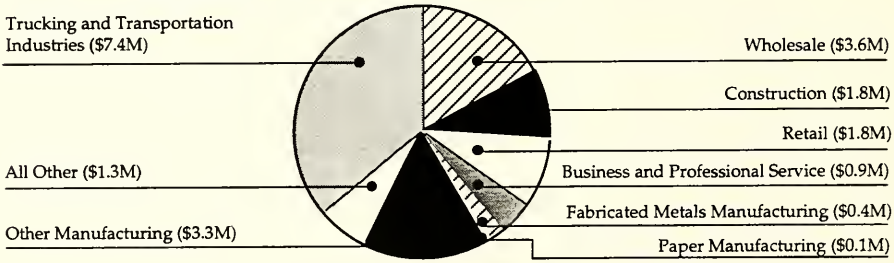
Disinvestment

Average Annual Increases in Truck Shipping Costs



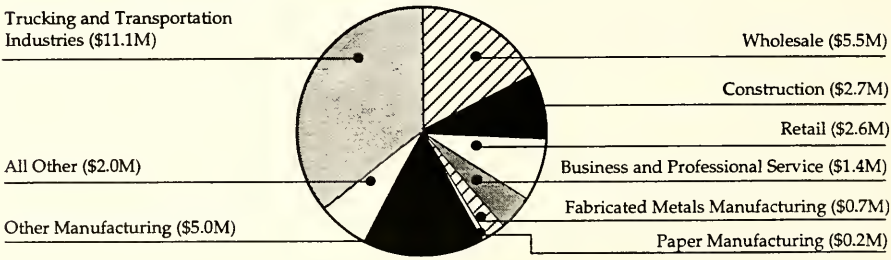
State of Good Repair

Average Annual Decreases in Truck Shipping Costs (or Cost Savings)



System Expansion

Average Annual Decreases in Truck Shipping Costs (or Cost Savings)



Source: Cambridge Systematics, Inc., based on inter-industry relationships, relative costs of trucking by industry sector, and local employment mix.

- **Disinvestment**

Spending on auto operating costs	+148.6 Million
Spending on car purchases	+15.5 Million
Spending on parking	+135.2 Million
Spending on public transit fares	-94.1 Million
Net change in personal spending	+205.2 Million

- **State of Good Repair**

Spending on auto operating costs	-157.3 Million
Spending on car purchases	-16.4 Million
Spending on parking	-143.0 Million
Spending on public transit fares	+75.0 Million
Net change in personal spending	-241.7 Million

- **System Expansion**

Spending on auto operating costs	-235.3 Million
Spending on car purchases	-24.5 Million
Spending on parking	-214.0 Million
Spending on public transit fares	+112.6 Million
Net increase in personal spending	-361.2 Million

These estimated impacts on household spending patterns are input into the REMI economic model to estimate impacts on aggregate local demand for various products, and for local production output. They are also represented in the REMI economic model as a change in remaining disposable income available for other types of discretionary purchases.

5.1.3 Quality of Life: Impacts on Population Attraction

Changes in levels of congestion in the metropolitan area by car may reduce or improve attractiveness of the Chicago metropolitan area for people (as well as businesses) considering where to relocate.

One way to measure congestion and time spent traveling is the change in number of vehicle miles traveled which would be associated with the various levels in transit investment. The changes resulting from the three RTA alternatives in an average year would be an additional 231 million highway vehicle miles traveled under the Disinvestment scenario; a reduction of 247 million vehicle miles under the State of Good Repair scenario; and 366 million fewer vehicle miles traveled under the System Expansion scenario. Through their effects on travel times and operating costs, the REMI economic model takes into account the amenity value of travel changes to forecast changes in metropolitan population in- and out-migration patterns.

To understand the impact of these changes on congestion and the quality of life, the changes in vehicle miles traveled (VMT) are analyzed in terms of how the scenarios add miles traveled to the network. This is done by forecasting annual vehicle miles traveled out to year 2014 (based on current relationships in the Chicago area between population and VMT), and comparing the changes to the baseline. The Disinvestment scenario represents a one percent increase in congestion, and the number of vehicle miles traveled, or a one percent worsening of congestion. The State of Good Repair scenario represents a one percent improvement in congestion, and the System Expansion scenario a two percent improvement, respectively, relative to the baseline.

5.1.4 RTA Jobs

RTA currently has approximately 16,295 employees. The Disinvestment scenario would result in a reduction of those jobs over the 20-year period, as operating costs and services are cut back. Correspondingly, increases in service and operations in the other two scenarios would result in an increase in employees. Table 5.2 shows the estimated increases or decreases in RTA employment in selected years, based on projected changes in operating costs. The REMI economic model takes into account changes in employment by RTA, and then forecasts further spin-off impacts of such changes.

5.1.5 Additional Benefits

In addition to the benefits or disbenefits which accrue to users of the transportation network as described above, there are also potentially some additional benefits (or disbenefits) which may occur as a result of the changes in access to the region.

These changes, known as "threshold effects," are changes which might occur above and beyond those accruing to direct users of the system. Changes in the transportation network can affect the markets businesses can serve, as well as areas from which they can access supplies. Improvements in congestion levels can expand markets; increased congestion can contract them. Changes in a region's transportation network can also affect the perception of a region as a place to live and locate a business, which may in turn affect businesses' decisions to move into or out of a region. Examples of these additional impacts are changes in additional business growth or reduction (above and beyond that which results from changes in trucking costs), and changes in tourism activity. In the case of additional change in business activity, for example, accessibility to a good labor pool is critical to a business choosing a location. If it becomes considerably easier or more difficult for businesses to get access to employees in a region, it may result in additional business moving into or out of the region. In the case of tourism, an example would be that changes in congestion of access in a region could make a region more or less attractive for travelers.

Both of these threshold effects are described below. It is important to note that while the potential for threshold effects is very real, they are also much more difficult to measure than those benefits accruing to the users. Further, a number of factors can affect the extent to which these effects might actually occur in the long term. The types of factors which

Table 5.2 Changes in Annual Direct RTA Employment Under Alternative Scenarios[1]

Scenario	1995	2000	2014	Annual Average
Disinvestment	-1,315	-1,350	-3,718	-2,233
State of Good Repair	-519	-25	2,378	748
System Expansion	2,268	3,545	9,106	5,271

[1] Compared to the Baseline/Deterioration scenario.

Source: Cambridge Systematics estimates, based on current employment and operating cost structure, and projected changes under the scenarios.

could impact the extent of threshold effects include: what competing areas are doing to attract business; the larger economic context; local economic development tools and programs available; and other infrastructure and private investment. The variables involved, as well as the somewhat intangible nature of "additional growth" of business, make projections difficult. Therefore, in this report, we evaluate these effects, and provide a reasonable estimate, based on a conservative approach. The results are shown separately, and are not included in the cost benefit analysis, in the interest of remaining conservative. The actual results in the long term could range considerably, either higher or lower than that which is shown here.

In evaluating how threshold effects may occur, the first step is to determine what portion of the economic activity is most sensitive to congestion and access changes for needs other than shipping. Secondly, we need to estimate what portion of this "at risk" component will actually be affected. The results of this are shown below.

Access to Labor

Changes in the level of RTA services and the accompanying changes in congestion and accessibility could potentially affect business location and investment within the Chicago region for reasons beyond just higher shipping costs. Another key impact would be on access to professional and clerical labor. RTA's services provide critical centralized access to a large labor pool for workers, particularly those in center city locations. Typically, business activities that are most dependent on this labor pool access are:

- Finance, Insurance, Real Estate (including bank offices, insurance company offices, credit and finance companies);
- Professional services (such as law firms, accounting, engineering, architecture, etc.); and
- Business services (such as advertising, credit reporting, data processing, public relations, etc.).

Evidence of the importance of centralized labor market access for office industries in Chicago is provided by recent employment trends. While most of the growth of manufacturing, wholesale, retail and other industries have shifted to the suburbs, the City of Chicago has maintained its major share of metropolitan-wide employment growth in banking, insurance, and professional and business services. These activities are supported by the centralized labor market access provided by RTA. The forecast growth in these business sectors out to 2014 (discussed earlier in Chapter 2.0) is expected to be partially at risk to the extent that a consistent share of that growth requires a center city type of locational access. If there are changes in the transportation network which affect the ability for businesses to have access to the necessary labor pool, they would potentially affect that part of projected future business growth which is most dependent on that access.

The type of business activity most likely to be affected by changes in labor force access are the sensitive industries described above, located in the central business district. This is because those locations are most dependent on RTA for labor access. A portion of the growth projected in these city businesses is sensitive to changes in RTA, depending on the

extent to which downtown workers use transit for work trips. Using information from the 1990 census, as well as recent survey data from CTA, it is estimated that approximately one-third, or 34 percent, of work trips to the CBD are made by transit. Eighty-seven percent of CBD employment is in industries sensitive to public transportation for labor access. Assuming the CBD retains its current competitive position, in 2014 there will be 88,600 jobs in sensitive industries, with 34 percent of them, or 30,124 jobs, potentially at risk to be affected either positively or negatively by changes in RTA service.

The portion of this "at risk" group of 30,124 jobs which would actually be affected would depend on a number of factors, including the changes in overall congestion levels under the three scenarios. As discussed above, based on vehicle miles traveled under the three scenarios, in 2014, congestion will be approximately one percent worse, under the Disinvestment scenario, while under the State of Good Repair and System Expansion scenarios, it will be one percent and two percent better, respectively. Therefore, it is reasonable to estimate that these changes on congestion and accessibility could create similar impacts on additional business loss or gain. The direct impact on jobs would then be: Disinvestment -301 jobs; State of Good Repair +301 jobs; and System Expansion +602 jobs, in year 2014. These estimated impacts on business attraction are input separately into the REMI economic model to forecast the potential further spin-off impacts on the economy.

Impacts on Visitors

Changes in RTA service may also affect the visitor population in greater Chicago. As described earlier in Chapter 2.0, different segments of the visitor population rely on RTA in different ways for access to their various activities. Therefore, the future changes in RTA services may result in additional loss or gain of visitor business. It is also important to note that the changes in RTA will affect not only visitors who use RTA, but also those who use the road network, due to congestion changes.

Tourists. Tourists, or pleasure travelers, use a variety of transportation methods, including RTA, for access into and within the region. This is described earlier in Chapter 2.0. The degree to which tourists are likely to be affected depends on the type of accommodation they use in Chicago. The three types are those staying in hotels, those visiting friends and relatives, and day trippers. These are described earlier in Section 2.1 in more detail.

Those visiting friends and relatives who use RTA are unlikely to be deterred from coming to Chicago, as long as their friends and/or relations continue to live in the region. The other two groups are more vulnerable, because they are pleasure travelers, with discretion as to where they travel. If RTA services worsened, some day trippers who use RTA to come to the city to go to museums, exhibits, and other activities, could and would drive if they had no other option. Some day trippers who use RTA might not come at all, because of increased congestion, parking difficulty and expense, and lack of access for automobiles. Similarly, the reduction in congestion and increase in access could result in an increase in day trippers. That portion of day trippers at risk to be affected by changes in RTA, as well as roadway congestion, would include the 13 percent of day trippers who use RTA, as well as a small portion of those coming by car, for whom the changes in congestion would affect their desire to visit Chicago area attractions. It is possible that half of the day trippers using

RTA, and 10 percent of those using autos would be sensitive to changes. The portion of this group which might be lost or gained is estimated using the congestion indicators described above. This would represent a change in number of visitors ranging from -5,156 (Disinvestment), to +5,156 (State of Good Repair) to +10,311 (System Expansion) visitor days.

Those tourists who stay overnight in hotels are also sensitive to RTA changes. These travelers arrive by air, train, bus, and car. An estimated 65 percent of overnight hotel travelers come via air. According to CTA surveys, six percent of pleasure travelers arriving by air take RTA into the city. A small portion of visitors staying in hotels travel to the region via train or bus. A survey by Illinois DOT found that approximately one-third (or 34 percent) of those coming by train or bus use RTA. Changes in roadway congestion are estimated to put approximately ten percent of those remaining hotel travelers who use cars at risk. Overall, the number of tourists at risk to be affected is 548,000 visitors, or 768,000 visitor days. Using congestion changes, the actual impacts on this population would be a range of loss of 2,523 visitor days under the Disinvestment scenario, to a gain of 2,523 for Good Repair and 15,622 for System Expansion.

Business Travelers. Business travelers who visit Chicago to conduct business, are unlikely to be directly affected by the change in RTA services. If it is necessary for people to come to the region to reach their business destination, then they will continue to come, regardless of how they have to get there. Therefore, the extent to which there is an impact in the number of business travelers depends more on whether businesses remain in Chicago and the local economy remains strong, as opposed to direct changes in travel options.

Convention Travelers. Convention travelers attending conventions, trade shows, and other special events, are also sensitive to changes in RTA service. As with the tourist segment, both day trippers and those staying overnight at hotels are likely to be impacted. Approximately 5.3 percent of convention travelers coming for the day by air use RTA. Of those travelers arriving by train or bus, 22 percent use RTA once they arrive. Of those coming by auto, an additional ten percent are estimated to be at risk. The total convention visitor days which would be lost or gained under the three scenarios would range from -5,288 to +10,576 for hotel visitors, and -3,867 to +7,735 for day trippers.

The total estimated change in visitor days due to changes in accessibility and congestion in the three scenarios for RTA is -16,834 for the Disinvestment scenario, +16,834 for State of Good Repair, and +18,056 visitor days under System Expansion, or approximately twelve percent of the total visitor population. These impacts are input separately into the REMI economic model to forecast potential further changes in local hotel sales and retail purchases if these threshold effects were to occur.

5.1.6 Overall Impacts

The REMI economic simulation model is used to forecast how these various changes in economic activity resulting from the changes in RTA service (including changes in transit jobs, changes in cost of doing business, changes in cost of living, changes in "quality of life,"

and changes in business attraction and tourism) would affect business trends in the Chicago metropolitan area. The economic model also forecasts the further "spin-off" impacts that affect all sectors of the economy. There are three kinds of spin-off effects:

- **Indirect Effects** – The changes in business sectors directly affected by changes in RTA services lead to corresponding changes in orders to other businesses that supply their equipment, materials and services (e.g., business machines, office furniture, and janitorial services).

- **Induced Effects** – The changes in population, jobs and personal income leads to corresponding changes in sales of consumer goods and services (e.g., clothing, restaurants, stores, and movies).

- **Trade Effects** – The changes in the Chicago metropolitan area business activity leads to further changes in the rest of the State of Illinois.

Overall impacts on the metropolitan area economy are described in Section 5.2; impacts on the rest of the state are described in Section 5.3; impacts on the state as a whole in Section 5.4. Fiscal impacts of the population and employment changes are shown in Section 5.5.

5.1.7 Intra-Regional Relocations

One type of potential change which could take place if RTA services were reduced or expanded is the relocation of job locations within the metropolitan area. This study did not explicitly model how activities remaining within the metropolitan area would relocate in response to changes in transportation costs and levels of congestion. This is particularly of concern under the Disinvestment scenario, where the increases in congestion and costs, particularly in the city center, could push activity out to suburban fringe locations.

In order for activities to reorganize, new job locations (offices) would have to be constructed and new infrastructure facilities (road capacity, sewer capacity, etc.) would have to be provided. It cannot be assumed that relocated jobs would simply fill up otherwise vacant office buildings, or that trips to those jobs would fill up otherwise empty highways. The costs of new office buildings and new infrastructure would have to be less than the estimated transportation costs, or else the region would face at least the same increased costs as shown in this analysis. The adverse impacts of reducing RTA services cannot be avoided through relocations of regional activities unless the direct costs of such relocations are less than the direct (transportation) costs of reducing RTA.

Even making the most modest estimates of new office, and infrastructure construction costs, those costs might be very large, and thus, relocations of business locations within the region are not likely to provide a cheap solution through which the adverse impacts of reducing RTA services could be avoided. In fact, the necessity of locational adjustments for some types of business may mean that actual economic costs to business are even greater than those estimated here. In any case, although the costs of reorganizing are likely to be

very large, a precise estimate is infeasible within the scope of work of this study. Further research on the costs of reorganizing urban areas, with and without transit, will be necessary before intra-regional reorganization can be fully addressed. For purposes of this study, business impacts are thus limited to those previously discussed in this section.

5.2 Regional Economic Impacts

This section summarizes the overall impacts of the changes described above on the economy of the region, including direct, indirect and induced effects. Economic impacts represent changes to both business and personal spending, as well as jobs gained or lost. This section describes the economic impacts of the RTA alternatives on regional business sales, employment, household income, and population. It then examines the impacts of changes in investment in RTA on the rest of the State of Illinois. Note that the economic impacts described below are those directly resulting from changes in costs to users of the transportation network. As described earlier, there are additional potential threshold effects, for which an estimate of these is also shown, but it is important to note that these could vary depending on a number of factors described earlier.

5.2.1 Regional Business Sales Impacts

Disinvestment Scenario

Changing Impacts Over Time. The reduction in investment in RTA would have immediate impact on all travelers in the Chicago area, both RTA users and highway users, who would both experience additional travel time and out-of-pocket costs of travel. The magnitude of congestion impacts would continue to increase over time.

Impacts on the economy of the Chicago metropolitan area of these increases in user costs, however, would not be immediate. The longer travel times and higher travel costs would not immediately drive away businesses. The additional spending on cars, car repair, fuel, parking and insurance would even increase sales for some area businesses.

Over time, however, the greater cost of doing business would make the Chicago metropolitan area less competitive for "basic industries" (i.e., businesses that serve regional or national markets, which don't have to locate in the Chicago metropolitan area). The reduced access to labor would make Chicago less attractive for banking and insurance offices, and professional services. The reduced "amenity level" (quality of life) would make the metropolitan area less attractive as a place to live. Sales for businesses now within the metropolitan area would grow slower (or shrink) due to a less competitive cost structure. Businesses that select locations to expand or open new branches would be more likely to pass over the Chicago area and select sites in competing metropolitan areas.

Over time, the loss of regional income and business sales would grow to far exceed the value of the direct travel impacts described in Chapter 4.0. The Chicago metropolitan area REMI model forecasts that the loss of business sales associated with the reduction of investment in RTA services over time would be a loss of $.593 billion in 1995, rising to $1.075 billion in 2000, $1.601 billion in 2005, $2.155 billion in 2010, and $2.581 billion in the year 2014 (see Figure 5.2). The loss of business sales by the year 2014 represents four percent of forecast total business sales for that year.

Distribution of Impacts by Business Type. The loss of business sales would particularly hit the service, construction, and finance/insurance/real estate sectors of the economy. The loss of jobs, income and business orders will have ripple effects on other sectors of the economy including wholesale, retail and construction. A breakdown of business sales impacts, by type of business and by year, is shown in Table 5.3.

Additional Impacts. As described earlier, this scenario could also result in additional loss of business activities, if increased congestion and loss of access result in additional business moving out due to loss of access to labor and loss of tourist activity. Under this scenario, the estimated threshold effects of these two elements would result in an additional loss of $2.8 million in 1995, $6.5 million in 2000, $17.3 million in 2005, $25.1 million in 2010, and $32.5 million in 2014.

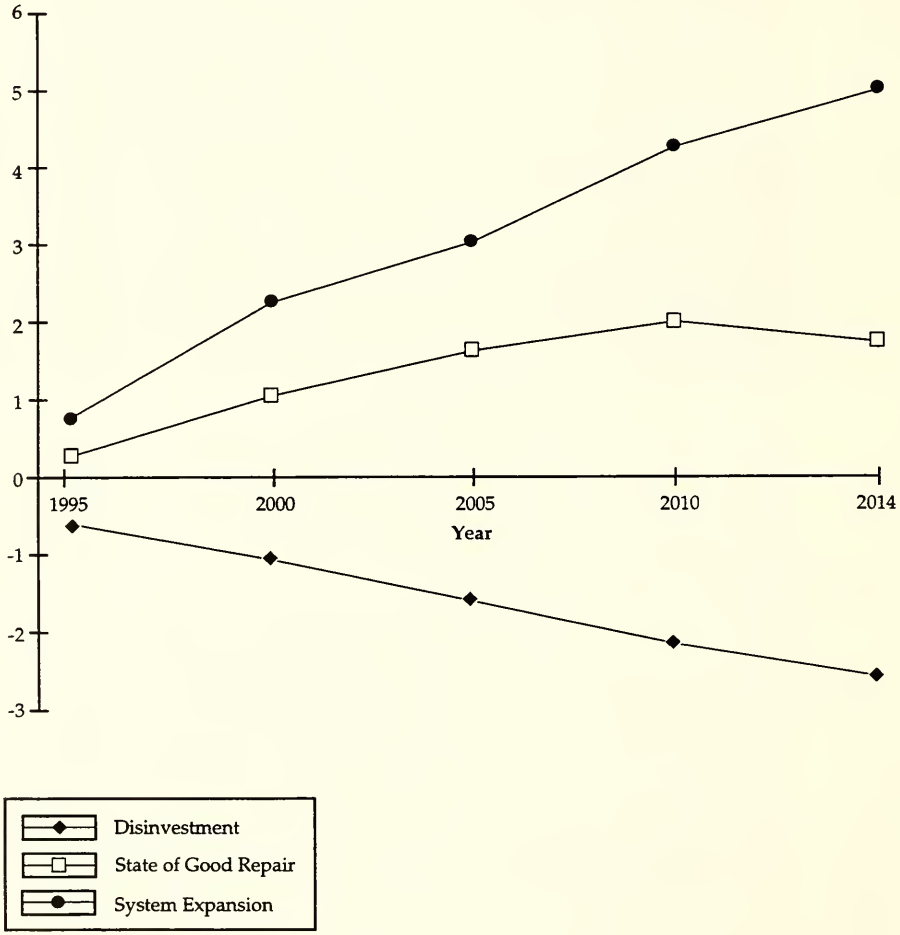
State of Good Repair Scenario

Changing Impacts Over Time. Bringing the RTA system to a state of good repair initially would have a negative impact on travelers, both RTA users and highway users, as major capital improvements would have to begin being made. After year one, however, the benefits would increase substantially over time once capital improvements to the RTA system are made, and the network begins to benefit from the improvements to the public transportation service.

Impacts on the metropolitan area economy would also begin gradually, and then increase over time. Contrary to the impacts under the Disinvestment scenario, over time, improvements in RTA would result in improvements to congestion and travel time. This would then result in a corresponding decrease in costs for doing business in the Chicago metropolitan area, which would make the area more competitive for a variety of industries, both those already located in Chicago, and those which serve regional or national markets. The improvement in the "amenity level," or quality of life, would make the metropolitan area more attractive as a place to live. Sales for businesses locations within the metropolitan area would grow more quickly due to a more competitive cost structure. Businesses from outside the region looking for new locations would be more likely to select a location in the Chicago metropolitan area.

Over time, the gain of regional business sales would grow to far exceed to value of direct travel impacts. The REMI model forecasts that the increase in business sales associated with investment to bring the RTA system to a state of good repair would be $.261 billion in 1995, $1.035 billion in 2000, $1.635 billion in 2005, $2.004 billion in 2010, and $1.725 billion in 2014 (see Figure 5.2 and Table 5.3).

Figure 5.2 Impact of RTA Alternatives on Annual Metropolitan Business Sales[1] (In Constant 1994 $ Billions)



Source: Cambridge Systematics, Inc., using the REMI model.

[1] Relative to the base case (Baseline/Deterioration)

Table 5.3 Impact of RTA Alternatives on Annual Metropolitan Business Sales, by Type of Business

Industry	Sales in Millions of Constant 1994 Dollars (compared to Baseline/Deterioration) 1995	2000	2010	2014
Disinvestment Scenario				
Durables Manufacturing	-29.6	-61.6	-178.7	-234.6
Non-Durables	-19.4	-61.5	-163.8	-210.6
Construction	-139.9	-173.8	-276.0	-302.1
Transportation and Utilities	-36.0	-82.8	-167.0	-202.3
Finance, Insurance and Real Estate	-125.3	-226.8	-396.4	-464.3
Retail Trade	-73.3	-139.7	-269.4	-318.7
Wholesale Trade	-33.8	-61.3	-125.6	-153.3
Services	-134.2	-265.3	-570.6	-686.6
Other	-1.6	-3.5	-7.4	-8.9
Total	**-593.3**	**-1,074.6**	**-2,154.8**	**-2,581.5**
State of Good Repair Scenario				
Durables Manufacturing	14.8	54.3	154.1	186.2
Non-Durables	7.5	51.6	148.1	159.6
Construction	71.6	182.7	247.9	187.5
Transportation and Utilities	14.9	76.7	160.4	143.8
Finance, Insurance and Real Estate	49.7	223.1	378.7	279.4
Retail Trade	29.8	133.4	256.8	207.1
Wholesale Trade	14.9	59.3	116.2	104.5
Services	57.3	251.0	535.2	451.6
Other	.7	3.4	6.9	5.8
Total	**261.2**	**1,035.3**	**2,004.2**	**1,725.5**
System Expansion Scenario				
Durables Manufacturing	59.0	184.5	399.8	494.7
Non-Durables	14.8	140.5	328.1	404.2
Construction	283.4	440.4	641.4	705.2
Transportation and Utilities	33.5	147.3	305.0	365.0
Finance, Insurance and Real Estate	108.1	406.6	736.6	840.0
Retail Trade	73.2	252.0	493.6	576.5
Wholesale Trade	43.4	127.4	250.1	296.2
Services	169.6	535.2	1,114.9	1,320.9
Other	1.8	7.1	14.5	17.1
Total	**787.1**	**2,241.3**	**4,283.8**	**5,019.8**

Source: Cambridge Systematics, Inc., using the REMI Model.

Distribution of Business Impacts by Type. Initially, the gain in business sales forecast above would be felt most significantly in the construction sector, and the services sector. Over time, the most gain in sales will be found in services, finance/insurance/real estate, and construction sectors. These effects would in turn ripple through other sectors of the economy. The impacts on various business sectors, by year, are shown in Table 5.3.

Additional Impacts. Under the State of Good Repair scenario, the threshold effects estimated in the earlier section would result in additional business sales of $2.8 million in 1995, $9.8 million in 2000, $17.1 million in 2005, $25.9 million in 2010, and $27.7 million in 2014.

System Expansion Scenario

Changing Impacts Over Time. This scenario would result in similar trends as the State of Good Repair, more exaggerated due to the heavier level of investment and the greater improvements to the travel network. It will be several years before the benefits of improved travel conditions outweigh the major capital investment initially called for under this scenario. After year 1999, the benefits begin to increase, providing the largest benefits to travelers in years 2012, 2013, and 2014.

The REMI model forecasts that the changes in business sales associated with investment to expand the RTA system would be $.787 billion in 1995, $2.241 billion in 2000, $3.023 billion in 2005, $4.283 billion in 2010, and rising to $5.020 billion in 2014 (see Figure 5.2 and Table 5.3).

Distribution of Business Impacts by Type. Similar to the State of Good Repair scenario, initially the gain in business sales forecast above would be felt most significantly in the construction and services services. In later years, construction, retail, and finance/insurance and real estate while experience the most growth in sales. Under the System Expansion scenario, there will also be significant increase in manufacturing, particularly of durable goods. The impacts on various business sectors, by year, is shown in Table 5.3.

Additional Impacts. Under the System Expansion scenario, the threshold effects estimated would result in additional business sales of $6.3 million in 1995, $21.3 million in 2000, $34.4 million in 2005, $50.8 million in 2010, and $66.1 million in 2014.

5.2.2 Regional Employment Impacts

Disinvestment

The loss of business activity resulting from this scenario would also create a loss of jobs to the Chicago metropolitan area. With the reduction in RTA services, the impact on employment is that there would be approximately 4,000 fewer jobs in the metropolitan area in 1995, or year one. By the year 2014, the figure would increase to almost 25,000 fewer jobs in the metropolitan area.

The mix of jobs lost is broken down by industry in Table 5.4 and Figure 5.3. The key industries losing jobs would be retail and services industries. Construction employment would also suffer. Government employment shows increases, which result from the underlying assumption that state and local government investment in RTA which is being reduced would be spent elsewhere in local government expenditure. This is due to the structure of state and local government spending, and the capital intensive nature of public expenditures on transportation. Many other local government functions are less capital intensive, and more labor intensive than infrastructure such as transportation. Shifts between different types of government spending will therefore change the level of government employment depending on the nature of the government activity.

Additional losses in jobs resulting from threshold impacts range from 31 jobs in 1995 to 450 jobs in 2014.

State of Good Repair Scenario

The expansion of overall business sales under the State of Good Repair scenario will also result in expansion of jobs, as shown in Table 5.4. As the table shows, jobs will increase overall in 1995 by 1,146. They will rise to 20,693 in 2010, and drop slightly to 16,215 by 2014. The job growth is most likely to occur in retail, finance/insurance/real estate, and services. Government employment would drop somewhat as new expenditures for bringing the system to a state of good repair would pull money that would be used elsewhere in the state and local government to RTA, reducing other government programs, for the reason described above.

Additional threshold jobs being created under this scenario would range from 31 in 1995 to 449 jobs in 2014.

System Expansion Scenario

The expansion of overall business sales under the System Expansion scenario will also result in an even greater expansion of jobs in the long term, with an initial drop due to major shifts in government expenditure, as shown in Table 5.4. As the table shows, jobs will decrease overall in 1995 by 4,130. They will rise to 31,378 in 2010, and 36,137 by 2014. The job growth is most likely to occur in retail, finance/insurance/real estate, and services.

Additional threshold jobs estimated under this scenario would range from 67 in 1995 to 899 jobs in 2014.

5.2.3 Regional Income Impacts

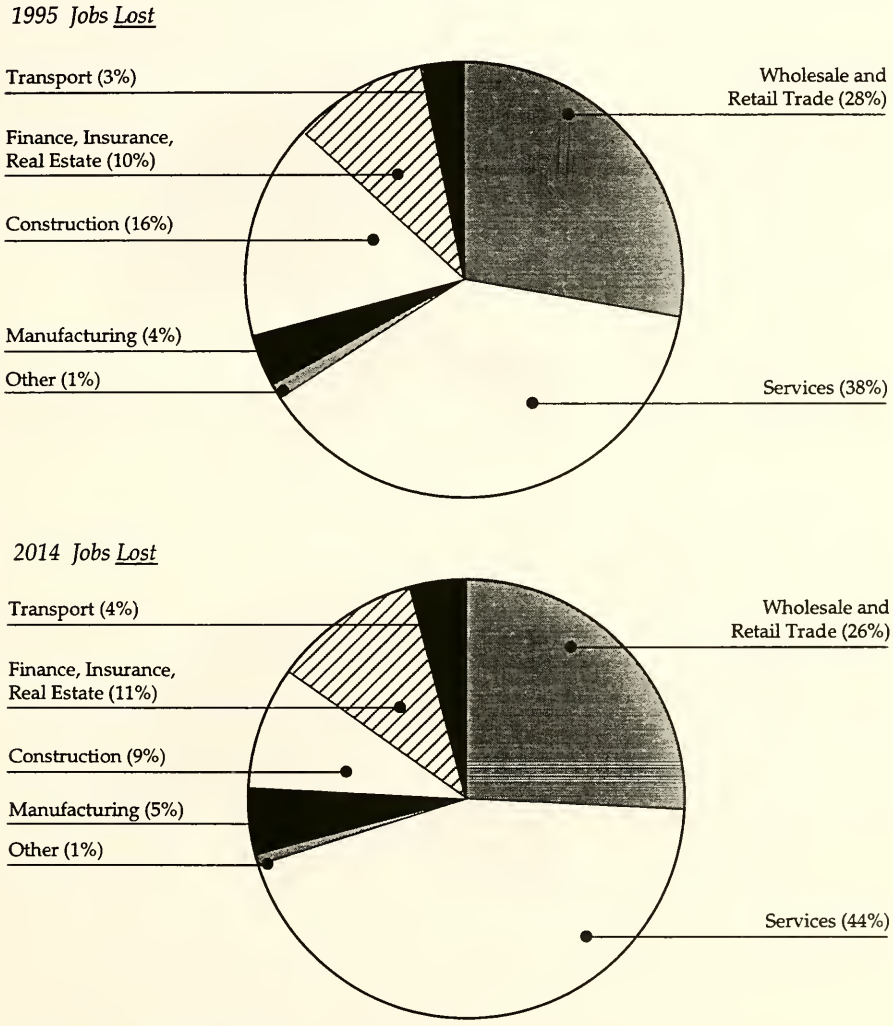
The loss of jobs due to the reduction of RTA services in the Disinvestment scenario would cause a loss of overall personal income in the metropolitan area. A depressed labor market, in which average wages are reduced, would lead to further reductions in personal income. The impact, in terms of personal income, would be $.6 billion by the year 2000, rising to $1.7 billion by the year 2014, as expressed in constant 1994 dollars.

Table 5.4 Impact of RTA Alternatives on Metropolitan Employment, by Type of Business

Industry	Change in Total Metropolitan Employment (compared to Baseline/Deterioration) 1995	2000	2010	2014
Disinvestment Scenario				
Durables Manufacturing	-155	-291	-639	-751
Non-Durables	-101	-272	-645	-788
Construction	-990	-1,247	-2,015	-2,220
Transportation and Utilities	-218	-503	-981	-1,162
Finance, Insurance and Real Estate	-605	-1,200	-2,290	-2,726
Retail Trade	-1,443	-2,655	-4,844	-5,596
Wholesale Trade	-321	-561	-1,081	-1,286
Services	-2,424	-4,672	-9,696	-11,495
Government	2,258	155	1,591	1,281
Other	-49	-99	-210	-251
Total	-4,048	-11,343	-20,808	-24,994
State of Good Repair Scenario				
Durables Manufacturing	77	254	550	596
Non-Durables	41	234	577	606
Construction	507	1,310	1,801	1,386
Transportation and Utilities	91	471	942	876
Finance, Insurance and Real Estate	238	1,141	2,158	1,808
Retail Trade	587	2,515	4,582	3,721
Wholesale Trade	141	536	989	898
Services	1,032	4,389	9,041	7,685
Government	-1,591	310	-188	-1,531
Other	22	91	195	170
Total	1,146	11,252	20,693	16,215
System Expansion Scenario				
Durables Manufacturing	296	862	1,428	1,582
Non-Durables	88	620	1,299	1,523
Construction	2,011	3,184	4,691	5,176
Transportation and Utilities	207	926	1,807	2,123
Finance, Insurance and Real Estate	491	2,172	4,258	4,961
Retail Trade	1,450	4,865	8,983	10,240
Wholesale Trade	414	1,185	2,175	2,506
Services	3,072	9,565	19,235	22,420
Government	-12,223	-10,372	-12,912	-14,881
Other	64	203	414	487
Total	-4,130	13,211	31,378	36,137

Source: Cambridge Systematics, Inc., using the REMI Model.

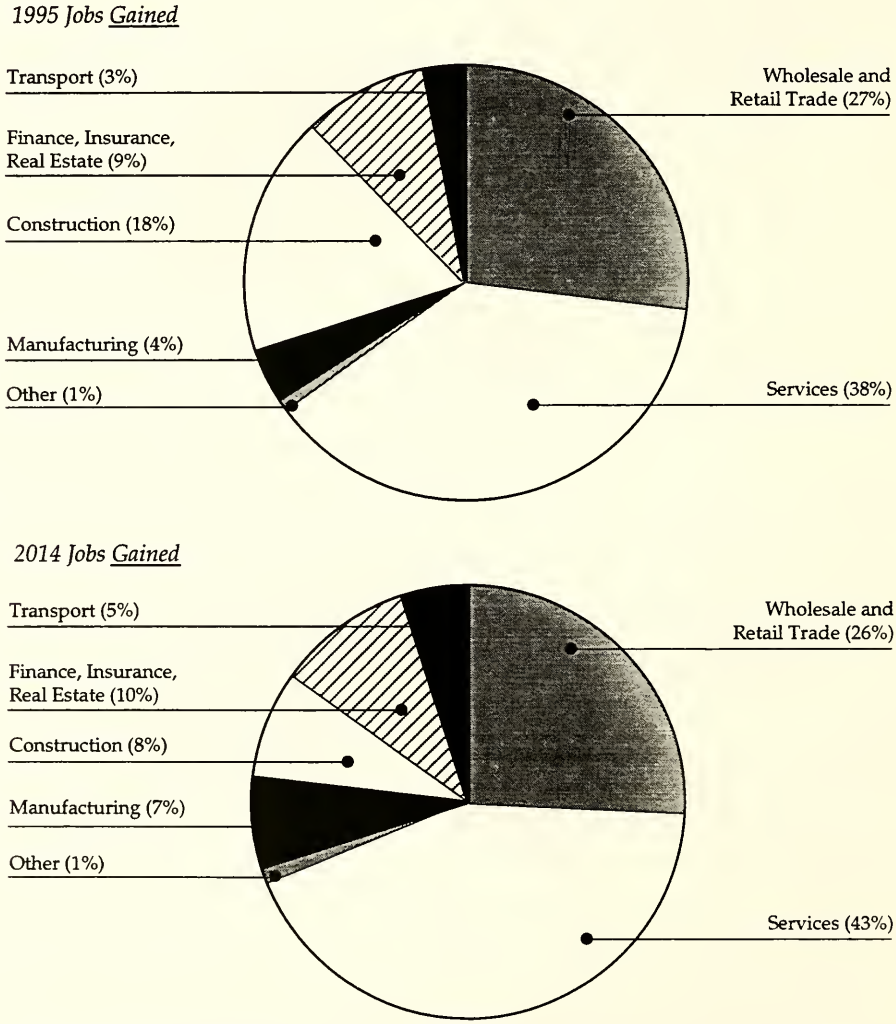
Figure 5.3 Impact of RTA Alternatives on Jobs in the Metropolitan Area by Industry[1]: Disinvestment Scenario



1 Private, Non-Farm Employment

Source: Cambridge Systematics, Inc., using the REMI model.

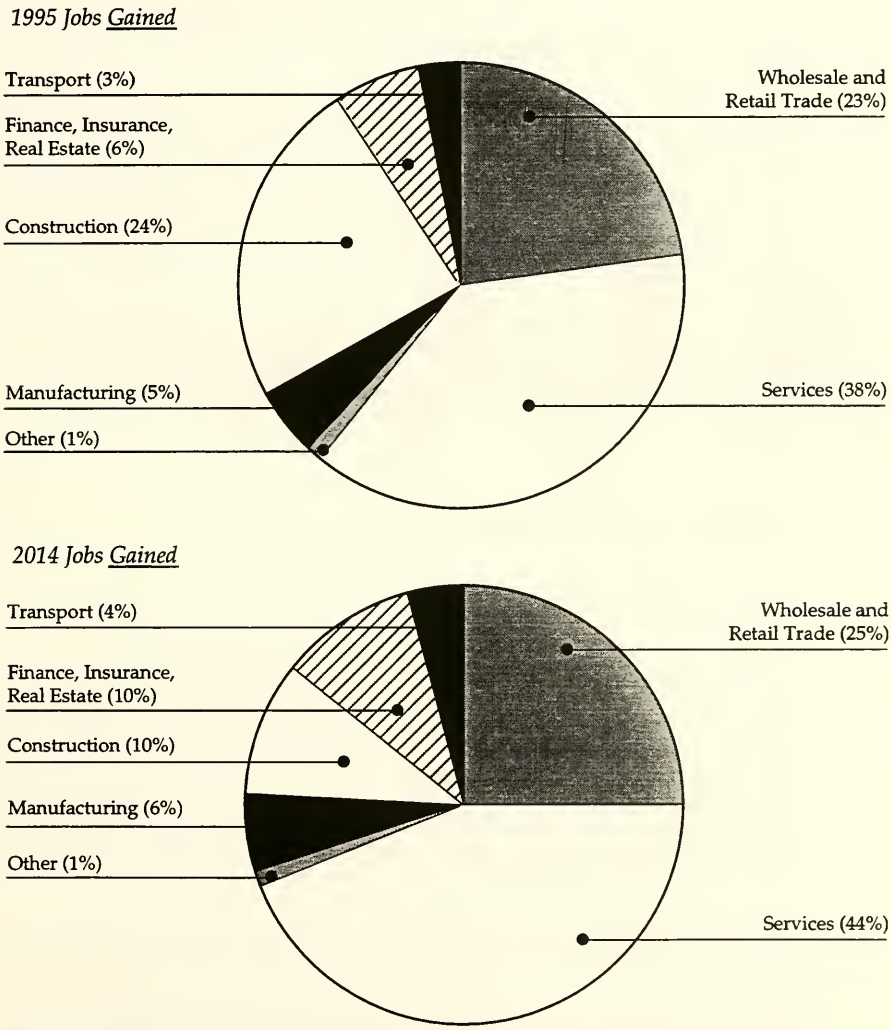
Figure 5.3 Impact of RTA Alternatives on Jobs in the Metropolitan Area by Industry[1]: State of Good Repair Scenario (continued)



[1] Private, Non-Farm Employment

Source: Cambridge Systematics, Inc., using the REMI model.

Figure 5.3 Impact of RTA Alternatives on Jobs in the Metropolitan Area by Industry[1]: System Expansion Scenario (continued)



[1] Private, Non-Farm Employment

Source: Cambridge Systematics, Inc., using the REMI model.

The State of Good Repair and System Expansion scenarios, with their increases in employment, are associated with income gains in the region. The corresponding gain of income by the year 2014 would be $1.2 billion under the state of good repair scenario and $3.1 billion under the system expansion scenario. Changes over time in the income impacts of all RTA scenarios are shown in Figure 5.4 and Table 5.5.

5.2.4 Regional Population Impacts

Under the Disinvestment scenario, the loss of jobs would cause some households to move away from the Chicago metropolitan area. The REMI model forecasts the changes in population based on the relationship of population change to forecast changes in employment. The reduction of RTA services would result in 22,000 fewer people living in the metropolitan area by the year 2000. By the year 2014, this difference would increase to 55,000 fewer people living in the metropolitan area. This is approximately four percent of the baseline population growth projected in the region shown in Chapter 2.0.

Under the State of Good Repair scenario, metropolitan population would grow an additional 15,000 in the year 2000 and 42,000 in 2014. Under the System Expansion scenario, metropolitan population would be nearly 25,000 more by the year 2000, and 91,000 more by 2014, compares to baseline growth. The population impacts of all three RTA scenarios are shown in Figure 5.5 and Table 5.5.

5.3 Statewide Economic Impacts

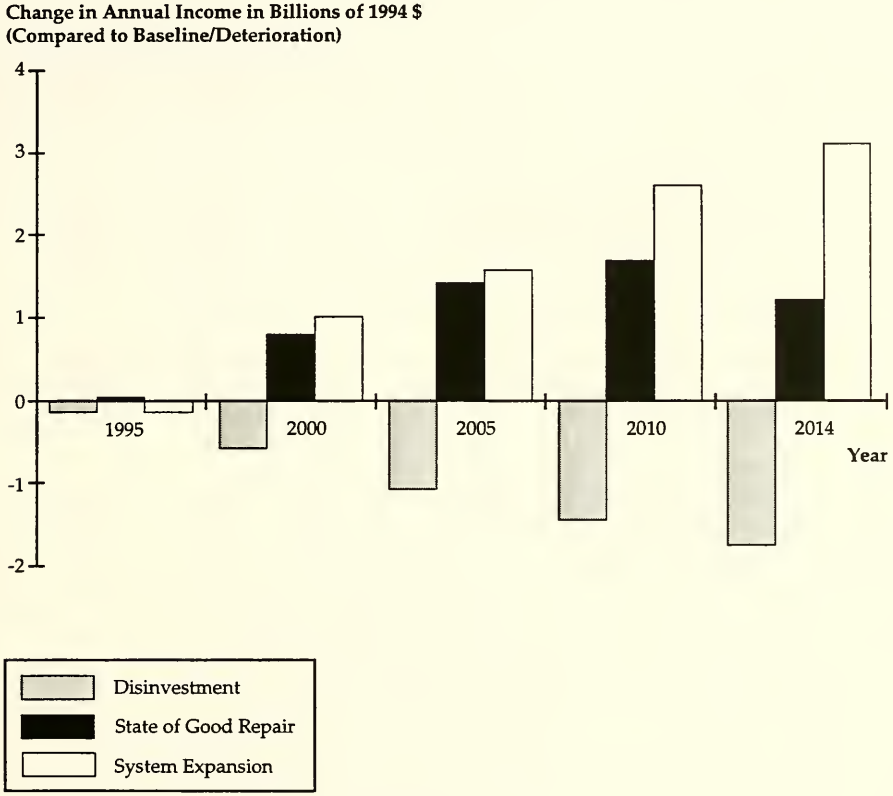
5.3.1 Impacts on the Rest of the State

The Chicago metropolitan area is a major generator of economic activity for the rest of the State of Illinois. Currently, Chicago metropolitan area employment accounts for two-thirds of the state's employment and three-quarters of the state's business sales. Businesses elsewhere in the state produce goods and services for users in the Chicago area. Losses in business activity resulting from changes in the Chicago metropolitan area under the Disinvestment scenario may not relocate elsewhere in the state, particularly specialized business activity which require access to major labor markets and other amenities such as a major metropolitan area hold for business. Many of these businesses will locate outside the state altogether, to other major metropolitan areas.

On the other hand, growth in the Chicago metropolitan area will benefit the rest of the state, because of its economic importance and trade ties to business elsewhere in the state.

The spillover impacts for each alternative on the rest of the state (outside of the Chicago metropolitan area) are summarized in Table 5.6. The impacts of this Disinvestment scenario would be a change in employment in the rest of the state amounting to 1,600 fewer

Figure 5.4 Impact of RTA Alternatives on Chicago Metropolitan Area Income Over Time



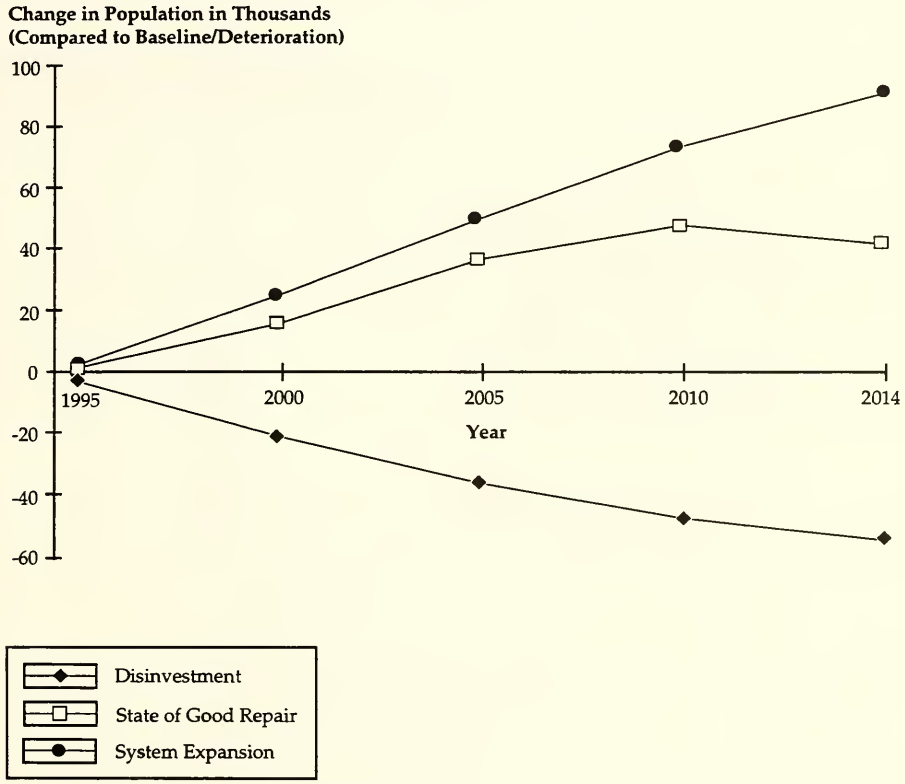
Source: Cambridge Systematics, Inc., using the REMI model.

Table 5.5 Summary of Economic Impacts of RTA Alternatives on the Chicago Metropolitan Area

Industry	Annual Impact (compared to Baseline/Deterioration) 1995	2000	2010	2014
Disinvestment Scenario				
Business Sales (in millions of $1994)	-593	-1,075	-2,155	-2,581
Personal Income (in millions of $1994)	-148	-595	-1,460	-1,766
Employment (thousands)	-4.0	-11.3	-20.8	-25.0
Population (thousands)	-3.0	-21.8	-47.8	-54.9
State of Good Repair Scenario				
Business Sales (in millions of $1994)	261	1,035	2,004	1,726
Personal Income (in millions of $1994)	42	800	1,683	1,214
Employment (thousands)	1.1	11.2	20.7	16.2
Population (thousands)	1.2	15.5	47.7	41.6
System Expansion Scenario				
Business Sales (in millions of $1994)	787	2,241	4,284	5,020
Personal Income (in millions of $1994)	-156	1,021	2,614	3,117
Employment (thousands)	-4.1	13.2	31.4	36.1
Population (thousands)	2.0	24.9	73.4	90.7

Source: Cambridge Systematics, Inc., using the REMI Model.

Figure 5.5 Impact of RTA Alternatives on Metropolitan Population Over Time



Source: Cambridge Systematics, Inc., using the REMI model.

Table 5.6 Economic Impacts of RTA Alternatives on the Rest of Illinois Outside of the Chicago Metropolitan Area

Industry	Annual Impact (compared to Baseline/Deterioration) 1995	2000	2010	2014
Disinvestment Scenario				
Business Sales (in millions of $1994)	-53	-79	-144	-171
Personal Income (in millions of $1994)	-23	-42	-82	-96
Employment (thousands)	-.7	-1.3	-2.0	-2.3
Population (thousands)	-.2	-1.6	-3.5	-4.1
State of Good Repair Scenario				
Business Sales (in millions of $1994)	24	81	133	106
Personal Income (in millions of $1994)	9	40	76	62
Employment (thousands)	.3	1.1	1.9	1.5
Population (thousands)	.09	1.2	3.5	3.1
System Expansion Scenario				
Business Sales (in millions of $1994)	79	167	289	331
Personal Income (in millions of $1994)	23	70	142	168
Employment (thousands)	.9	2.2	3.9	4.3
Population (thousands)	.2	2.3	5.9	7.3

Source: Cambridge Systematics, Inc., using the REMI Model.

jobs as of the year 2000, and 4,100 fewer jobs as of the year 2014. Business sales would decrease by $79 million and $171 million, respectively. Jobs would increase in the rest of the state under both the State of Good Repair and System Expansion scenarios by 1,200 and 2,300 in year 2000 respectively, and 3,100 and 7,300 in 2014.

5.3.2 Statewide Impacts

Overall impacts on the State of Chicago reflect:

- Impacts on the Chicago metropolitan area
- Plus impacts on the rest of the State of Illinois

This takes into account changes in shifts between Chicago and the rest of the state, as well as negative or positive impacts on the rest of the state. Overall impacts on the State of Illinois are displayed in Table 5.7, and summarized in the following text.

Disinvestment Scenario

Statewide impacts of the scenario would increase over time to represent by the year 2014:

- A loss of over $2.8 billion/year of business sales;
- A loss of over $1.9 billion/year in personal income;
- An employment loss of nearly 27,000 jobs; and
- A population loss of 59,000 people.

State of Good Repair Scenario

Statewide impacts of this scenario in year 2014 would be:

- A gain of over $1.8 billion/year of business sales;
- A gain of $1.3 billion/year in personal income;
- An employment gain of 18,000 jobs; and
- A population gain of 45,000 people.

System Expansion Scenario

By the year 2020, statewide impacts of expansion of RTA services would be:

Table 5.7 Economic Impacts of RTA Alternatives on the Entire State of Illinois

Industry	Annual Impact (compared to Baseline/Deterioration) 1995	2000	2010	2014
Disinvestment Scenario				
Business Sales (in billions of $1994)	-647	-1,153	-2,299	-2,752
Personal Income (in billions of $1991)	-171	-637	-1,542	-1,862
Employment (thousands)	-4.7	-12.5	-22.8	-27.3
Population (thousands)	-3.3	-22.8	-51.3	-58.9
State of Good Repair Scenario				
Business Sales (in billions of $1994)	286	1,116	2,138	1,831
Personal Income (in billions of $1991)	51	840	1,759	1,276
Employment (thousands)	1.4	12.4	22.6	17.7
Population (thousands)	1.3	16.7	51.2	44.7
System Expansion Scenario				
Business Sales (in billions of $1994)	866	2,409	4,573	5,351
Personal Income (in billions of $1991)	-133	1,091	2,756	3,285
Employment (thousands)	-3.2	15.4	35.2	40.5
Population (thousands)	2.2	27.2	79.3	98.0

Source: Cambridge Systematics, Inc., using the REMI Model.

- A gain of $5.3 billion/year of business sales;
- A gain of $3.3 billion/year personal income;
- An employment gain of 40,000 jobs; and
- A population gain of 98,000 people.

5.4 Fiscal Impacts

5.4.1 Overall Impacts

Cambridge Systematics, Inc. developed the fiscal impact model for the Chicago metropolitan area to forecast how the predicted change in population and employment would affect the finances of municipality and county governments, special districts, schools and community colleges. The model is described in detail in Chapter 3.0.

The premise of the model is that population and employment trends impact government revenues and expenditures in a way that is proportional to the incremental change in population and employment. The model shows that under the RTA Disinvestment Scenario, both revenues and expenditures are reduced for years 1995 through 2014. Under the RTA State of Good Repair and System Expansion Scenarios, the expansion in population and employment results in an increase in both revenues and expenditures. Separate models were run for each district type by major category of revenue and spending, and findings were tabulated to determine aggregate regional trends.

On the revenue side, property tax is the most significant source of revenue for municipality, county, and township governments, special districts, schools and community colleges. Property tax contributes approximately 53 percent of all government revenue in the Chicago metropolitan area. Revenue from property tax increases when new residential and commercial development occurs or when assessed values increase. Intergovernmental transfers such as sales tax, income tax, and federal revenue sharing also provide a substantial portion of revenue. Population and employment levels impact these intergovernmental transfers due to accompanying changes in personal income and tax redistribution for a certain region. State and federal educational assistance is also affected by changes in student enrollment.

On the expenditure side, spending varies widely depending on district type. Besides certain fixed costs, government spending is dependant on existing funding levels and economic and demographic trends. In the analysis, school districts include all elementary, unit and high school districts in the six-county study area. With the largest total budget, schools experience the most significant impacts on expenditures, primarily in student instruction and student services. At the municipal level, public safety and public works have the largest budgets and, therefore, have the largest budgetary changes under the three

scenarios. At the county level, health/welfare spending and corrections/judiciary have the largest budgets and vary according to unemployment levels and other social factors. Tables 5.8 through 5.10 show the impacts by government level (i.e., municipality, county, etc.). Tables 5.11 through 5.13 show impacts on specific types of revenues and expenditures.

Disinvestment Scenario

Under the Disinvestment Scenario, reductions in revenues would occur during all years. In 1994 constant dollars, total revenues would decrease by $4.8 million in year 1995 and $86.6 million in year 2014. School revenues experience the largest reduction in year 2014, $52.9 million. Municipal and county revenues would also lose significantly, by $15.1 million and $12.6 million, respectively. (See Table 5.8.)

In this scenario, slower population and employment growth translate into a slower development climate for the Chicago metropolitan area. In turn, lower total assessed values result in lower real property tax revenue. By year 2014, schools would receive $31.4 million less in property tax revenues. In 2014, county governments would lose $5.0 million in property tax revenues, and municipal governments would lose $3.8 million. Other important revenue sources including sales and income tax, and other inter-governmental transfers would decrease in years 1995 to 2014 due to slower population growth. (See Table 5.11.)

Government expenditures under the Disinvestment Scenario would also decrease for years 1995 through 2014. In constant 1994 dollars, total spending would be $4.8 million lower in year 1995 and $86.5 million lower by year 2014. The $86.5 million reduction in spending includes $15.1 million in municipal expenditures, and $12.6 million in county expenditures, $52.9 million in school expenditures, as well as other expenditures as shown in Table 5.8.

Expenditures at the municipal level would be reduced by $4.6 million in public safety funds, $3.5 million in public works funds and $2.7 million in "general government" funds in year 2014. County spending would decrease most significantly in correctional/judiciary ($4.1 million) and health/welfare ($4.0 million). Student instruction spending, comprising the largest portion of educational spending, would be reduced by $24.7 million in school districts and $1.7 million in community colleges. (See Table 5.11.)

State of Good Repair Scenario

Under the State of Good Repair Scenario, population and employment growth translates into more development, and, therefore, a larger tax base. Government revenues would increase as a result of this. In 1994 constant dollars, total revenue would increase by $1.9 million in year 1995 and by $67.8 million in year 2014. School revenues would increase by $41 million in year 2014. Increases in revenue would also include $11.8 million in municipal revenues, $10.1 million in county revenues, $0.7 million in special district revenues, and $2.7 million in community college revenues. (See Table 5.9.)

Due to a stronger development climate, higher total assessed values would provide more property tax revenue at all levels of government. In year 2014, schools would receive an additional $25.4 million in property tax revenues. At the same time, county governments

Table 5.8 Summary of Fiscal Impacts of RTA Investment on the Chicago Metropolitan Area Disinvestment Scenario (1994 Dollars)

	1995	2000	2010	2014
Change in Revenues				
Municipal	($ 838,000)	($ 5,834,057)	($13,158,780)	($15,105,485)
County	(697,209)	(4,853,889)	(10,947,999)	(12,567,642)
Township	(51,468)	(358,316)	(808,186)	(927,749)
Special District	(95,239)	(663,043)	(1,495,502)	(1,716,746)
School (elementary, unit, high school)	(2,933,449)	(20,422,319)	(46,062,764)	(52,877,273)
Community College	(190,522)	(1,326,390)	(2,991,688)	(3,434,277)
Total	**($4,805,888)**	**($33,458,014)**	**($75,464,919)**	**($86,629,172)**
Change in Expenditures				
Municipal	($ 837,014)	($ 5,827,188)	($13,143,287)	($15,087,700)
County	(695,574)	(4,842,504)	(10,922,321)	(12,538,165)
Township	(51,422)	(357,993)	(807,458)	(926,913)
Special District	(94,921)	(660,831)	(1,490,512)	(1,711,017)
School (elementary, unit, high school)	(2,931,855)	(20,411,222)	(46,037,736)	(52,848,542)
Community College	(190,393)	(1,325,494)	(2,989,666)	(3,431,956)
Total	**($4,801,179)**	**($33,425,233)**	**($75,390,979)**	**($86,544,294)**

Source: Cambridge Systematics, Inc.

Table 5.9 Summary of Fiscal Impacts of RTA Investment on the: Chicago Metropolitan Area State of Good Repair Scenario (1994 Dollars)

	1995	2000	2010	2014
Change in Revenues				
Municipal	$ 330,520	$ 4,403,529	$13,532,588	$11,819,221
County	283,329	3,774,794	11,600,407	10,131,674
Township	20,006	266,542	819,117	715,408
Special District	38,068	507,181	1,558,629	1,361,290
School (elementary, unit, high school)	1,149,307	15,312,240	47,056,407	41,098,575
Community College	74,445	991,835	3,048,032	2,662,119
Total	**$1,895,675**	**$25,256,121**	**$77,615,179**	**$67,788,288**
Change in Expenditures				
Municipal	$ 330,518	$ 4,403,500	$13,532,501	$11,819,145
County	283,326	3,774,766	11,600,321	10,131,600
Township	20,003	266,500	818,989	715,296
Special District	38,067	507,168	1,558,589	1,361,255
School (elementary, unit, high school)	1,149,305	15,312,213	47,056,322	41,098,501
Community College	74,445	991,833	3,048,024	2,662,112
Total	**$1,895,664**	**$25,255,980**	**$77,614,745**	**$67,787,909**

Source: Cambridge Systematics, Inc.

Table 5.10 Summary of Fiscal Impacts of RTA Investment on the Chicago Metropolitan Area: System Expansion Scenario (1994 Dollars)

	1995	2000	2010	2014
Change in Revenues				
Municipal	$ 571,596	$ 7,082,333	$ 20,843,218	$ 25,753,602
County	489,983	6,071,118	17,867,226	22,076,506
Township	34,598	428,688	1,261,623	1,558,845
Special District	65,834	815,714	2,400,637	2,966,196
School (elementary, unit, high school)	1,987,590	24,627,154	72,477,412	89,552,120
Community College	128,744	1,595,199	4,694,652	5,800,649
Total	**$3,278,345**	**$40,620,206**	**$119,544,769**	**$147,707,917**
Change in Expenditures				
Municipal	$ 571,592	$ 7,082,287	$ 20,843,084	$ 25,753,435
County	489,980	6,071,073	17,867,094	22,076,343
Township	34,593	428,621	1,261,426	1,558,601
Special District	65,832	815,694	2,400,576	2,966,120
School (elementary, unit, high school)	1,987,586	24,627,109	72,477,281	89,551,958
Community College	128,744	1,595,195	4,694,640	5,800,634
Total	**$3,278,326**	**$40,619,979**	**$119,544,101**	**$147,707,092**

Source: Cambridge Systematics, Inc.

Table 5.11 Detailed Revenues and Expenditures Disinvestment Scenario (1994 Dollars)

	1995	2000	2005	2010	2014
Change in Revenues					
Property Tax	($2,407,815)	($16,762,917)	($29,123,245)	($37,808,944)	($43,402,386)
Sales Tax	(221,363)	(1,541,099)	(2,677,446)	(3,475,967)	(3,990,200)
Other Local	(180,290)	(1,255,160)	(2,180,667)	(2,831,027)	(3,249,848)
State Income Tax	(98,710)	(687,206)	(1,193,926)	(1,550,001)	(1,779,308)
Other State	(926,860)	(6,452,688)	(11,210,650)	(14,554,108)	(16,707,238)
Federal	(178,975)	(1,246,005)	(2,164,760)	(2,810,377)	(3,226,144)
Other Revenue	(462,202)	(3,217,794)	(5,590,471)	(7,257,770)	(8,331,481)
Other Educational	(329,673)	(2,295,145)	(3,987,496)	(5,176,725)	(5,942,568)
Total	**($4,805,888)**	**($33,458,014)**	**($58,128,661)**	**($75,464,919)**	**($86,629,172)**
Change in Expenditures					
General Government	($ 276,416)	($ 1,924,377)	($ 3,343,339)	($ 4,340,454)	($ 4,982,580)
Public Safety	(308,169)	(2,145,437)	(3,727,400)	(4,839,057)	(5,554,946)
Corrections/Judiciary	(229,045)	(1,594,585)	(2,770,370)	(3,596,604)	(4,128,684)
Public Works	(294,283)	(2,048,766)	(3,559,447)	(4,621,015)	(5,304,646)
Health/Welfare	(238,155)	(1,658,010)	(2,880,562)	(3,739,660)	(4,292,904)
Culture/Recreation	(73,962)	(514,917)	(894,597)	(1,161,401)	(1,333,218)
Other	(258,899)	(1,802,424)	(3,131,461)	(4,065,386)	(4,666,818)
Educational Instruction	(1,468,424)	(10,222,989)	(17,761,026)	(23,058,064)	(26,469,266)
Educ. Administration/Services	(1,102,408)	(7,674,832)	(13,333,956)	(17,310,667)	(19,871,601)
Other Educational	(551,416)	(3,838,895)	(6,669,548)	(8,658,671)	(9,939,631)
Total	**($4,801,179)**	**($33,425,233)**	**($58,071,707)**	**($75,390,979)**	**($86,544,294)**

Source: The Civic Federation and Cambridge Systematics, Inc.

Table 5.12 Detailed Revenues and Expenditures State of Good Repair (1994 Dollars)

	1995	2000	2005	2010	2014
Change in Revenues					
Property Tax	$ 992,653	$13,225,138	$31,029,783	$40,642,483	$35,496,720
Sales Tax	84,359	1,123,918	2,637,019	3,453,939	3,016,635
Other Local	69,394	924,543	2,169,231	2,841,236	2,481,506
State Income Tax	37,585	500,748	1,174,893	1,538,862	1,344,026
Other State	341,105	4,544,551	10,662,757	13,965,968	12,197,730
Federal	68,485	912,428	2,140,804	2,804,003	2,448,987
Other Revenue	178,525	2,378,488	5,580,582	7,309,388	6,383,943
Other Educational	123,568	1,646,306	3,862,682	5,059,301	4,418,740
Total	**$1,895,675**	**$25,256,121**	**$59,257,751**	**$77,615,179**	**$67,788,288**
Change in Expenditures					
General Government	$ 111,080	$ 1,479,924	$ 3,472,305	$ 4,547,989	$ 3,972,166
Public Safety	130,956	1,744,728	4,093,607	5,361,764	4,682,908
Corrections/Judiciary	84,083	1,120,237	2,628,382	3,442,627	3,006,754
Public Works	111,940	1,491,373	3,499,167	4,583,173	4,002,895
Health/Welfare	110,390	1,470,728	3,450,728	4,519,728	3,947,483
Culture/Recreation	25,693	342,311	803,154	1,051,963	918,773
Other	97,773	1,302,635	3,056,336	4,003,157	3,496,316
Educational Instruction	578,839	7,711,887	18,094,191	23,699,581	20,698,967
Educ. Administration/Services	429,442	5,721,473	13,424,136	17,582,792	15,356,627
Other Educational	215,468	2,870,686	6,735,413	8,821,973	7,705,019
Total	**$1,895,664**	**$25,255,980**	**$59,257,420**	**$77,614,745**	**$67,787,909**

Source: The Civic Federation and Cambridge Systematics, Inc.

Table 5.13 Detailed Revenues and Expenditures System Expansion Scenario (1994 Dollars)

	1995	2000	2005	2010	2014
Change in Revenues					
Property Tax	$1,716,675	$21,270,402	$42,415,443	$ 62,598,531	$ 77,345,908
Sales Tax	145,889	1,807,633	3,604,612	5,319,841	6,573,124
Other Local	120,009	1,486,972	2,965,180	4,376,140	5,407,100
State Income Tax	64,999	805,369	1,605,992	2,370,192	2,928,578
Other State	589,901	7,309,144	14,575,209	21,510,720	26,578,357
Federal	118,437	1,467,486	2,926,323	4,318,793	5,336,243
Other Revenue	308,737	3,825,397	7,628,248	11,258,096	13,910,352
Other Educational	213,697	2,647,805	5,280,004	7,792,457	9,628,255
Total	**$3,278,345**	**$40,620,206**	**$81,001,011**	**$119,544,769**	**$147,707,917**
Change in Expenditures					
General Government	$ 192,100	$ 2,380,208	$ 4,746,387	$ 7,004,922	$ 8,655,188
Public Safety	226,473	2,806,100	5,595,662	8,258,318	10,203,867
Corrections/Judiciary	145,411	1,801,712	3,592,805	5,302,416	6,551,595
Public Works	193,586	2,398,621	4,783,106	7,059,113	8,722,146
Health/Welfare	190,906	2,365,417	4,716,893	6,961,393	8,601,404
Culture/Recreation	44,433	550,549	1,097,853	1,620,258	2,001,970
Other	169,087	2,095,068	4,177,788	6,165,759	7,618,330
Educational Instruction	1,001,034	12,403,268	24,733,435	36,502,666	45,102,205
Educ. Administration/Services	742,670	9,202,023	18,349,812	27,081,440	33,461,465
Other Educational	372,626	4,617,014	9,206,816	13,587,815	16,788,922
Total	**$3,278,326**	**$40,619,979**	**$81,000,558**	**$119,544,101**	**$147,707,092**

Source: The Civic Federation and Cambridge Systematics, Inc.

would receive $4.3 million more in property tax revenues, and municipal governments $3.2 million more. Population growth would also translate into higher income from local revenues such as permits, fees, fines, and licenses, as well as inter-governmental transfers including sales, income, motor fuel tax, and federal revenue sharing. (See Table 5.12.)

Population and employment growth also require higher levels of government spending. Expenditures under the State of Good Repair Scenario would increase by $1.9 million in total in year 1995, and $67.8 million by year 2014. The majority of the $67.8 million increase includes $11.8 million in municipal expenditures, $10.1 million in county expenditures, and $41.1 million in school expenditures. Higher spending at all levels of government would include infrastructure costs, as well as administrative and human services.

System Expansion Scenario

Similarly, the population and employment growth associated with the System Expansion Scenario would result in increases of both government revenue and expenditures. Total revenue for the Chicago metropolitan area in this scenario would be more than twice that under the State of Good Repair Scenario. In 1994 constant dollars, revenue increases by $3.3 million in year 1995 and $147.7 million in year 2014. The majority of the increase is in school, municipal and county revenues, as shown in Table 5.10. Property tax is the largest source of income for all levels of government. (See Table 5.13.)

Expenditures under the System Expansion Scenario are also considerably higher than those under the State of Good Repair Scenario. In 1994 constant dollars, total spending would increase by $3.3 million in year 1995 and $147.7 million in year 2014. Greater expenditures at all level of governments would include infrastructure costs, as well as administrative and human services.

6.0 Conclusions

6.0 Conclusions

6.1 Benefit/Cost Comparison

6.1.1 Definitions

Benefit/cost analysis provides a means of assessing the net public benefits of the various levels of investment in RTA, relative to the base case of the baseline level of investment. The comparison is made in terms of the "net benefit" (defined as benefits minus costs) and the "benefit/cost ratio" (defined as the ratio of benefits divided by costs).

The costs and benefits associated with the RTA alternatives are defined by the fact that one of the alternatives represents a negative change in transit services, while the other two represent a positive change, compared to the base case.

Thus, in the case of the Disinvestment Scenario:

- The economic "benefit" of reducing RTA is a savings in public spending now going to subsidize the price of providing public transportation services.

- The economic "cost" of reducing RTA is a loss of personal income due to contraction of the economy as a result of the degraded transportation system.

In the cases of the State of Good Repair and System Expansion Scenarios:

- The economic "benefit" of improving or expanding RTA is an increase in personal income due to the expansion of the economy as a result of an upgraded transportation system.

- The economic "cost" of improving or expanding RTA is an increase in public spending now going to subsidize the price of providing public transportation services.

Thus, the benefit/cost comparison effectively compares the benefit of added money in the pockets of Chicago and Illinois residents to the cost of money lost from the pockets of Chicago and Illinois residents.

In order to evaluate each of the three RTA alternatives (relative to the base case alternative), it is necessary to compare streams of costs and benefits generated during each year of the 20-year study period from 1995 through 2014. Each future year cost and benefit is estimated in terms of constant 1994 dollars, and then further discounted to its equivalent "present value." Discounting reflects the "time value of money," the fact that a dollar

available in the future has less present value than a dollar available right now (over and above the effect of inflation). The further into the future a cost or benefit occurs, the more heavily it is discounted and, thus, the lower its equivalent present value.

Discounting is important because the attractiveness of one transit service alternative over another is determined by both the size and timing of its costs and benefits. It is typical of transportation projects that capital expenditures are experienced early on, while regional and state economic impacts do not start to accrue until later on. The present value of costs and benefits provides a consistent and fair basis for comparing alternatives. The discount rate adopted for project evaluation purposes by state and federal transportation agencies ranges from four percent to 10 percent. We use both discount rates for this study.

6.1.2 Findings

Results of the benefit/cost analysis are shown for alternative discount rates in Tables 6.1 and 6.2. It is clear that for all three of the alternatives, the costs of investing in transit are far outweighed by the benefits they generate to the region.

In the case of the Disinvestment Scenario, while the reduction in RTA would save the public a considerable amount in spending on RTA ($2.5 billion and $1.4 billion, at 4% and 10% discount rates, respectively), the negative impacts of reducing RTA services would result in a loss of personal income approximately five times the amount of the savings. The net impact on personal income would be $-10.6 billion at 4% discount, and $-5.5 billion at 10%.

As described above, in the case of the Disinvestment Scenario, the benefits are in terms of a reduction in the costs to the public of RTA. The costs are in terms of the loss of personal income due to the degradation of the transportation system. The benefit/cost ratios of this scenario are extremely low, regardless of which discount rate is used. The ratios are .19 (at 4%) and .21 (at 10%), meaning that the benefits of reducing RTA services are no more than 20 percent of the income losses which that brings to the state economy. These results show that it is not cost-effective to allow RTA to deteriorate.

In the State of Good Repair and Expansion Scenarios, the costs of additional investment in RTA services are far outweighed by the benefits generated to the economy and to the pockets of Illinois residents, under both discount rates. The State of Good Repair results in higher net benefits (an increase of $11.5 billion (4%) and $6.0 billion (10%) than the System Expansion Scenario. Investment in System Expansion results in $9.0 billion (4%) and $3.3 billion (10%).

The benefit/cost ratios are similar for both discount rates. Good Repair has the highest return on investment, at 6.6 (and 6.2). System Expansion is smaller (1.8 and 1.5), but still maintains a positive return.

Table 6.1 Net Present Value of Statewide Benefits and Costs of RTA Alternatives (at 4% Discount Rate)

	Impacts Relative to the Baseline/Deterioration Scenario (all values are net present values in billions of constant 1994 dollars)		
	Disinvestment	**State of Good Repair**	**System Expansion**
Net Public Spending on RTA	-2.5	+2.1	+11.2
Net Present Value of Income Change	-13.1	+13.6	+20.2
Net Impact on Personal Income	-10.6	+11.5	+9.0
Benefit/Cost Ratio of Investing in RTA[1]	0.19	6.6	1.8

[1] In the case of Disinvestment, the Benefit is represented by the reduction in public spending, and the Cost by the loss of personal income.

In the case of Good Repair and System Expansion, the Benefit is represented by the increase in personal income, and the Cost by the increased costs in public spending.

Source: Cambridge Systematics, Inc.

Table 6.2 Net Present Value of Statewide Benefits and Costs of RTA Alternatives (at 10% Discount Rate)

	Impacts Relative to the Baseline/Deterioration Scenario (all values are net present values in billions of constant 1994 dollars)		
	Disinvestment	**State of Good Repair**	**System Expansion**
Net Public Spending on RTA	-1.4	+1.2	+6.7
Net Present Value of Income Change	-6.9	+7.2	+10.0
Net Impact on Personal Income	-5.5	+6.0	+3.3
Benefit/Cost Ratio of Investing in RTA[1]	.21	6.2	1.5

[1] In the case of Disinvestment, the Benefit is represented by the reduction in public spending, and the Cost by the loss of personal income.

In the case of Good Repair and System Expansion, the Benefit is represented by the increase in personal income, and the Cost by the increased costs in public spending.

Source: Cambridge Systematics, Inc.

In terms of the Baseline/Deterioration Scenario, this scenario actually represents a higher level of investment than the disinvestment scenario. If the disinvestment scenario had been identified as the baseline, the baseline/deterioration scenario would represent a higher level of investment and would have shown a highly positive benefit-to-cost ratio, meaning that additional dollars of investment had a very positive return. The basic result is very consistent. All of the investments made as an increment over a very low minimum showed increasing returns, whether measured from a "disinvestment" baseline or a "baseline/deterioration" baseline. It is the positive impact of the additional incremental investment, not the particular title given a scenario, which is important.

6.2 RTA Investment as an Element of Regional and State Economic Development

The economy of the Chicago metropolitan area is undergoing a transformation which will accelerate in coming years. The ability of the area to continue to attract and keep major businesses will depend on maintaining and upgrading many factors including: labor force training, labor market access, "quality of life," and business access to provide goods and services to other major markets. The provision of an effective local transportation system is one requirement for continued economic growth. The analysis in this report clearly demonstrates that a reduction of RTA services would have a substantial detrimental impact on metropolitan area road congestion, household spending patterns, labor market access and costs of doing business. The impacts on long-term metropolitan growth would be dramatic.

At the same time, reductions of RTA services would have many other human impacts which cannot be readily quantified. The hardship to transit dependent persons, particularly lower income persons who lack access to a car, the elderly and the handicapped, would be severe, but does not affect the estimates of metropolitan area economic change provided in this report. Consequential impacts on costs of social services and institutionalized care are also likely to add to the severity of the ultimate economic impacts for the metropolitan area and the entire State of Illinois.

Further, this report demonstrates that there are positive impacts associated with continued investment in RTA. This report finds that not only would the detrimental economic impacts of reducing RTA services outweigh the savings for residents of Illinois, but the costs of further investment would also be outweighed by the additional benefits it would bring. These findings also mean that continued investment in RTA facilities and services at recommended levels would have substantial statewide economic benefits that outweigh the public subsidy costs for residents of Illinois, not simply those living in Chicago.

Appendix

Study Participants

Study Participants

This study was conducted by Cambridge Systematics, Inc. Local data collection, interviews, and analysis were carried out by Vlecides-Schroeder, Associates, Inc., Beata Welsh, and Ernest Sawyer Enterprises, Inc. The study was commissioned by RTA. The Project Manager for RTA was Ron Shimizu.

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